UNSOUND SCIENCE BY THE IPCC

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1. INTRODUCTION

Despite persistent efforts, the Intergovernmental Panel on Climate Change (IPCC) has never succeeded in the task set to it by the Framework Convention on Climate Change (FCCC), of supplying sound scientific evidence for the belief that human emissions of greenhouse gases are harming the climate. The evidence that has been supplied is based on unsound scientific methods and mathematics. This paper is an attempt to summarise some of it.

2. THE MEAN ENERGY BALANCE

The fundamental belief of the global warming theory is that the earth is in a system of energy "balance" which has been disturbed by human emissions of greenhouse gases.

The idea of thermal equilibrium of the earth is fundamentally opposed to evolution, and has no experimental or observational basis. The energy absorbed and emitted by the earth is never "balanced". Each part off the earth either emits heat or absorbs it.. Energy is absorbed by day, emitted by night; absorbed in the summer, emitted in the winter. The energy is partially distributed by convection and transfer by winds. Heat energy emitted or received fluctuates on every time scale from seconds to millions of years, and evolves over time.

There is an admission by the IPCC, from geological evidence that energy fluctuations have been regular and unpredictable in the past, but it is argued that the relatively short term changes supposed to be induced by greenhouse gas emissions are unusual if not "unprecedented". Short term changes are not capable of detection on the geological scale, so there is no evidence for this belief. Short term climate changes and fluctuations obviously do happen, as a result of volcanic eruptions, and ocean oscillation events as well as from changes in the sun and cosmic rays so why should changes in greenhouse gases be so different.

The "mean energy budget" was presented in the paper by Kiehl and Trenberth (1997) and has been featured in all the IPCC Reports. It is shown in Figure 1 (Solomon et al. 2007).

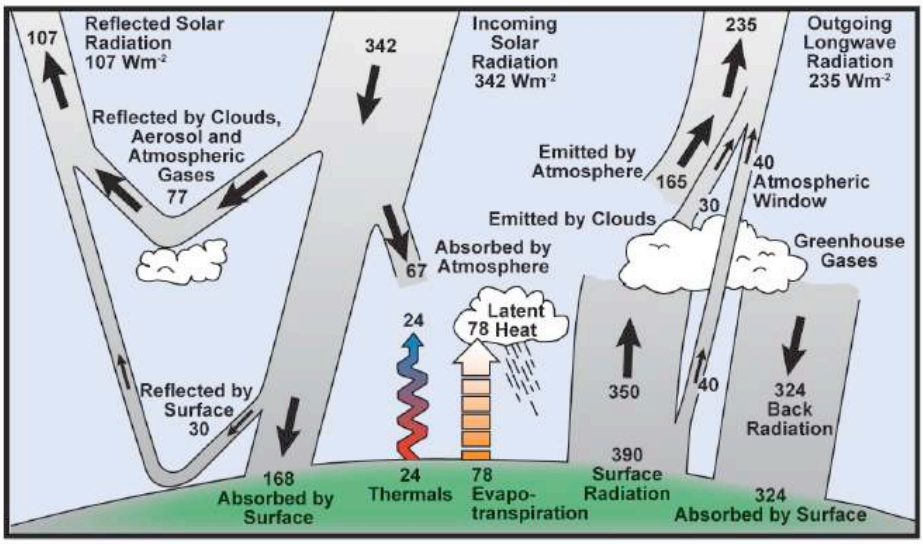

Figure 1 Earth's Annual Global Mean Energy Budget, as envisaged by Kiehl and Trenberth (1997) and published in "Climate Change 2007".

This picture is completely unreal. It is based on calculations from a large number of “average” quantities by using non-linear equations, a procedure that is mathematically unsound.

Take, as an example, the figure shown for the radiant energy emitted by the earth, which is given as 390 W/sqm.

If the earth is assumed to be "black body" the radiation intensity from the earth, E, in W/sqm is related to the absolute temperature *T* in K by the Stefan-Boltzmann equation

$$E = \sigma T^4$$

σ = 5.67x 10^{-8} W/sqm/K, is the Stefan-Boltzmann constant

The average temperature of the earth is thought by Kiehl and Trenberth to be 288K (15ºC). (although there is no reliable evidence that this is so)

If you put 288 into the Stefan-Boltzmann equation, you get 390 W/Sqm. the amount shown in Figure 1.

This means that Kiehl and Trenberth have assumed that the earth has a constant temperature of 288K (15ºC).

Such an assumption is absurd. The average of the fourth power of the temperature is not the same as the fourth power of the average temperature. The distribution curve of T to the fourth power is skewed towards higher temperatures. The radiation from the earth is very much greater from warmer regions than from cooler ones because of the fourth power dependency, so that temperatures above average have a much greater influence than temperatures below average.

Let us assume, just as an example,, that the earth is equally divided into four temperature zones, 313K (40ºC) 293K (20ºC), 283 (10ºC) and 263 (-10ºC) Average 288K (15C).

The energy of emission figures from each zone, by Stefan-Boltzmann are 544, 418, 363 and 271 W/sqm; average, 399W/sqm., 9W/sqm different from using the ovrall average

This error is much greater than the claimed effects of additional greenhouse gases which are only around 1.6W/sqm since 1750

The application to the emission equation of the highly variable albedo of different parts of the earth’s surface would complicate matters still further.

The actual distribution of the various climate parameters behind the calculations in Figure 1 is unknown, so it is not possible to derive a scientifically acceptable estimate of total emission and absorption of energy by the earth, or to study its variability or overall change.Yet this assumption is the basis of every one of the computer climate models.

Trenberth et al. (2002) admit that there are “Interannual variations” in their “atmospheric heat budget”, and details are given of local and temporal variability, dependent on changes in Sea Surface Temperature and ENSO events, The variability, as well as errors, seem to frequently exceed the supposed perturbations of greenhouse gas emissions.

3. **MEAN GLOBAL TEMPERATURE**

The public has been led to believe that "global temperature" is increasing, by means of a compilation called "mean annual global temperature anomaly" Figure 2).

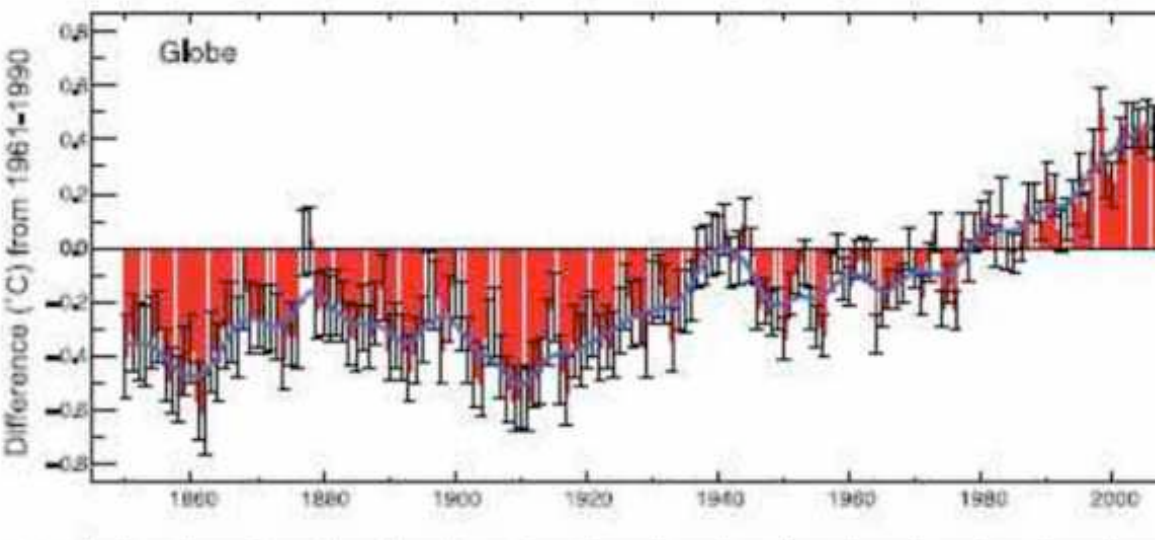

Figure 2. Mean annual global surface temperature anomaly record (Brohan et al 2006) showing 95% confidence levels.

They are unaware that this is based on a large number of faulty data and unacceptable mathematics from which no genuine average could ever be obtained.

3.1 REPRESENTATIVE SAMPLES

You cannot obtain a genuine average unless you start with a representative sample. Those conducting public opinion polls know very well that their results are meaningless unless they have a sample witch covers the whole population in a random and representative fashion. Examples of what happens when this goes astray are well known; because you soon find out if your result is wrong.

Similarly, the television authorities have to have some way of setting rates for advertisers. Unless they do so the rates will be unfair and they lose money. They go to a lot of trouble in finding a representative sample upon whose TV sets they can put their set boxes which determine their rates.

The whole point of these examples, is, that you soon find out when you are wrong. Climate "projections" and even "predictions" are always so far ahead that nobody can check on them; so they get away with false claims.

It is just not possible to obtain a representative sample of the earth's surface as the beginning of an attempt to discover average temperature. So what do they do? They take the measurements made by meteorological stations and get an average from them. But these are nearly all near cities and do not include most of the earth's surface. Such an average is worthless, and there is no way it can be "corrected".

3.2. NO LOCAL AVERAGE

If you want a "global average" you must surely start with a "local average", but no actual measurement of a local average temperature has ever been made; or at least published. What

do they use, then? They try to claim that they can show a sequence from 1850, so they are forced to use the only measurements of temperature have been made since that time, and for that matter, up to the present day in most places.

This involves only one temperature measurement a day, from a maximum and minimum thermometer. So the only measurements you have are a daily maximum and a daily minimum with an unrepresentative sample. It is assumed that the mean of these quantities represents some sort of average. This was once believed in 1850; but not today. Modern statistics does not recognise such an "average", which can depart from a genuine average by large and unknown amounts, incapable of being calculated. A recent comparison I made for some New Zealand weather stations (Gray 2007) shows that the error can be as large as 2.6ºC, much larger than the claimed effects of greenhouse warming.

3.3 THE TIME OF MEASUREMENT BIAS

The "maximum/minimum" temperature is only measured once, but it refers to the previous 24 hours, not to a normal day. The time of measurement varies from place to place and time to time, and is often not recorded. The US workers have tried to "correct" the US figures by carrying out comparisons between proper averages and the Max/min average and applying a "TOB" (Time Of measurement Bias) correction to all their figures. This correction has a very large measure of uncertainty, and is unlikely to be applicable to any country except the US.

All the same, by applying this correction, the US workers have shown that there is no evidence for "global warming" for the US over the last 100 years (Figure 6).

3.4 A CONVENIENT MISHAP

There seems to have been a convenient "mishap" to assist Al Gore, who in his recent film claimed that 2004 was the highest temperature ever recorded. It turns out they forgot to apply the TOB correction to the last few figures. If Steve McIntyre had not noticed it they might have got away with it, but when he pointed it out they had to change it and prove Al Gore a liar (not difficult). (Holland 2007). Now, the highest temperature ever recorded in the USA was in 1934 not 2004. (Figure 3)

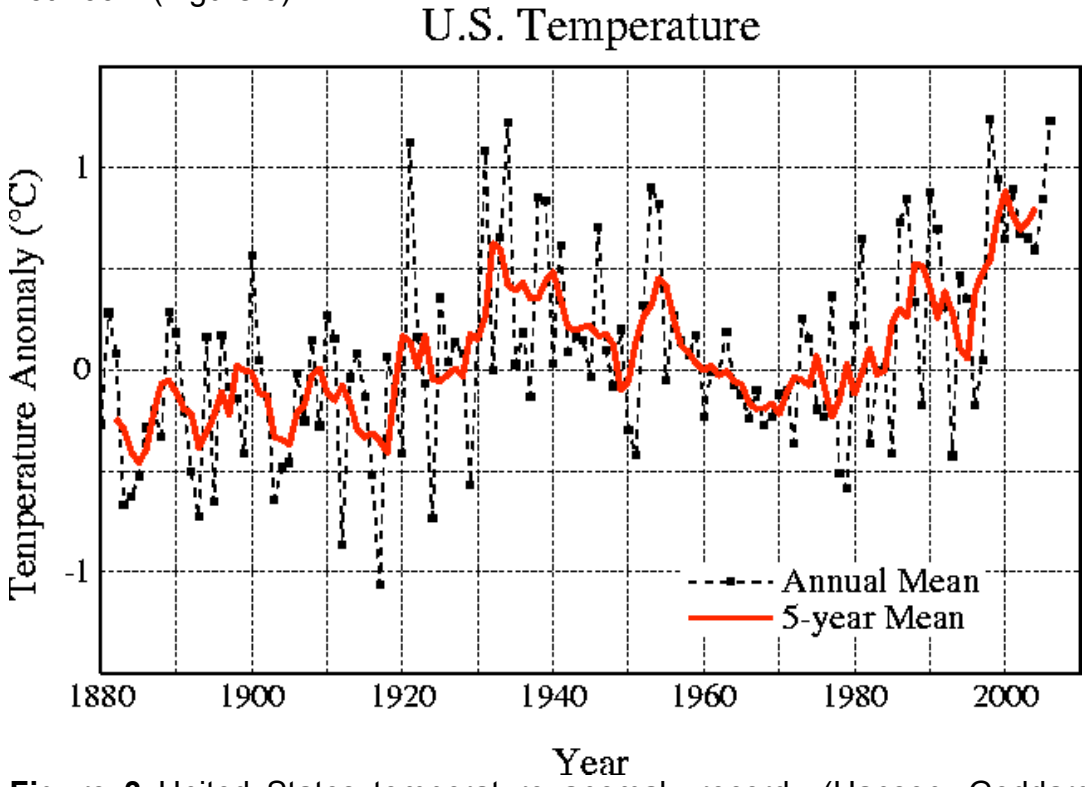

Figure 3 United States temperature anomaly record (Hansen. Goddard Institute of Space Studies, 2007) .

3.5 THE URBANIZATION BIAS

The unrepresentative meteorological temperatures are measured in places of increasing population, more buildings, more concrete, growing vegetation, more cars, more heating. They are subject to urban heating. The evidence that this is happening is overwhelming. It is the only authentic "anthropogenic" effect on the climate (Gray 2000)..

The IPCC have tried hard to find some evidence to show this is not so. The example most quoted is P D Jones et al (1991), who examined an "extensive" set of rural -station temperature data for three regions of the world; European parts of the Soviet Union, Western Australia and Eastern China. When combined with similar analyses for the contiguous United Sates, the results are representative of 20% of the land area of the Northern Hemisphere and 10% of the Southern Hemisphere

They worked out the linear slope of temperature anomalies for the rural series in each case and compared it with the same slope for several gridded series. For the Western USSR, this was 1901-1987, and 1930-1987, for Eastern Australia it was 1930-1988 compared with 1930-1997, for Eastern China it was 1954-1983, and for the contiguous United States it was 1901-1984 The differences were only significant at the 5% level for Eastern Australia and one set of Eastern China

They concluded "It is unlikely that the remaining unsampled areas of the developing countries in tropical climates, or other highly populated parts of Europe, could significantly increase the overall urban bias above 0.05ºC during the twentieth century"

Although Jones et al. in subsequent publications (Brohan et al. 2006) have sometimes indicated that they apply this correction to their global series, it is unclear whether they have done so in the more recent publications.

There are several things wrong with this paper.

* The quality of the data is even worse than usual, as they admit " It is unfortunate that separate maximum and minimum temperature data are not more widely available"

* The qualification for a "rural" site is a population below 10,000 for Western Soviet Union, below 35,000 for Eastern Australia, and below 100,000 for Eastern China. There is ample evidence (in my paper above to start with) that urban effects exist in such places.

* They have chosen countries with a continuous record of effective scientific supervision. They are not representative of the rest of the world, where changes of country and adequate supervision are far less common

*Even these countries raise doubts. Russia had a tyrannical regime where statistics were frequently manipulated for political, purposes. China had a major famine from the "Great Leap Forward", and also a manipulation of statistics.

*Two of the countries, the contiguous USA and China have such reliable records that, when corrected, they show no global warming, or residual urban influence. The United States cannot be regarded as "typical" of the world.

In the very same year that this paper appeared, 1990, there appeared in Geophysical Research Letters the following paper, which included two of the authors of the previous paper, (Wang et al 1991).

The abstract reads as follows

"We used 1954-1983 surface temperature from 42 Chinese urban (average population 1.7 million) and rural (average population 150,000), station pairs to study the urban heat island effects. Despite the fact that the rural stations are not true rural stations, the magnitude of the heat islands was calculated to average 0.23ºC over the thirty year period, with a minimum value (0.19ºC) during the 1964-1973 decade and maximum (0.28ºC) during the most recent decades"

This study by two authors of the previous paper, appears to have used the same stations that were claimed to have no urban bias in the first paper, and now there is an urban bias even if "rural" now includes places with population as high as 150,000.

The early paper (Jones et al 1991), states, of Eastern China

"The stations were selected on the basis of station history: we chose those with few. if any, changes in instrumentation, location or observation times"

Wang et al 1991 says

“They were chosen based on station histories, we chose those with few, if any, changes in instrumentation, location, or observation times"

It's as if both papers were written at the same time and different conclusions made from the same data.

Recently Keenan (2007) has shown that many of the Chinese stations moved several times over the period in question, in one case 15 km.

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3.6. QUALITY CONTROL

There is no quality control on meteorological stations. Nobody knows how many sites are close to towns, buildings, central heating pipes; what sort of instruments are used, who measures, how often.

Some years ago the Australians published pictures of their weather stations. They were withdrawn hurriedly after roars of laughter from the sceptics. Hardly any were suitable.

They have re-emerged with a new set of photos, all of which look marvellous. Maybe this is why world temperatures are not going up any more.

Recent studies in the US have shown that many of their stations are not suitable; even those designated as part of their prestige "GHCN (Global Historical Climatology Network). It is about time there was an international audit of meteorological stations.

3.7 THE HOCKEY STICK

This graph was fabricated in order to show that current "global temperatures" are "unprecedented" It involved joining together three completely different graphs. The first from "proxy" data going back 1000 years, the second, the familiar "mean annual global temperature anomaly", the third, their "projections" for the future.

The first part specialized in eliminating the "medieval warm period" and the "little ice age" against all the evidence for these periods which even formed a feature of the first IPCC Report (Houghton et al 1990). The second I have already shown to be shonky. The third is dealt with below.

It turned out the first one was shonky too. McIntyre and McKitrick, two Canadian scientists, having been initially deprived of access to the data, eventually showed that it had been calculated wrongly and when you used the correct mathematics it restored the medieval warm period so that it was even warmer in the 14th century than it is today.

The IPCC did not supply an honest reply to this criticism. Holland (2007) gives details. They do not admit they were wrong to this day, and many lecturers still use this faked graph. All the same, the IPCC have dropped the graph from their publications.

3.8 THE MSU

Since 1978 NASA satellites have measured the temperature of the atmosphere, at several levels, by means of Microwave Sounder Units (MSU) which derive temperature from the microwave spectrum of oxygen in the atmosphere. The temperature record for the lower atmosphere has persistently disagreed with that obtained by the above-described surface anomaly procedure.

The monthly global anomaly figures for the Lower Troposphere by the MSU are shown in Figure 4

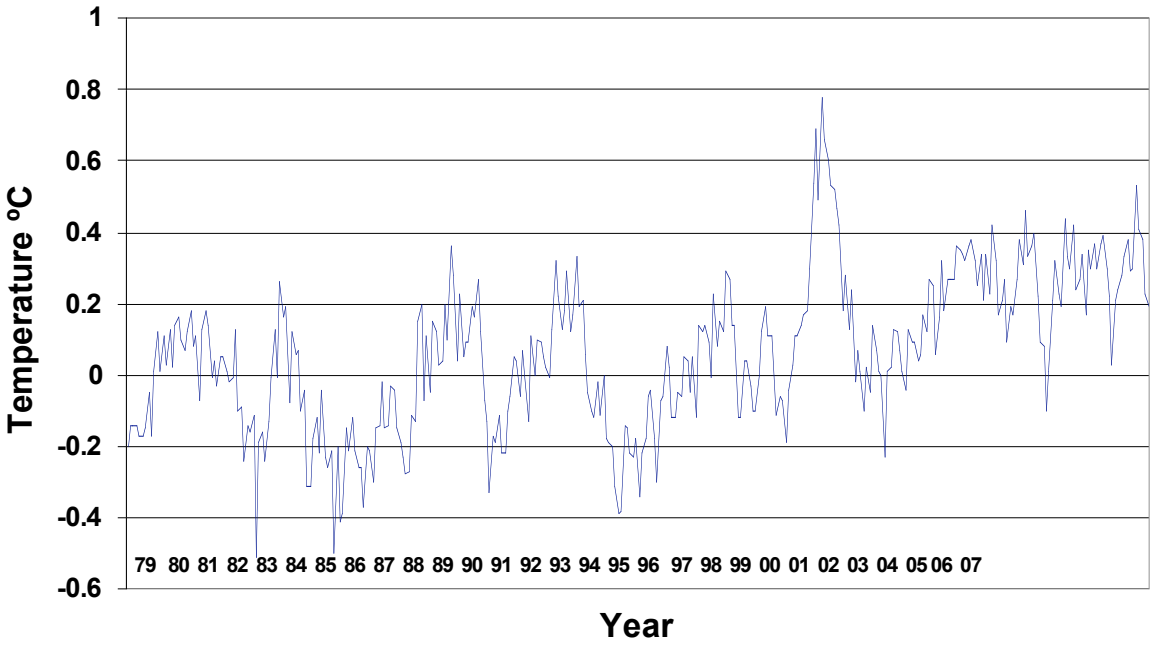

Figure 4. MSU (satellite) monthly global temperature anomaly record since 1979 for the lower troposphere. (MSU 2007).

The MSU record faithfully shows temperature anomalies from observed volcanic events (El Chichon 1982, Pinatubo 1991), and from ocean oscillations (particularly El Niño 1998), but it does not show the rise in temperature of the surface record, which is attributed to “global warming” from greenhouse gas emissions between 1979 and 1999, and between 2001 and 2007. The durability of the temperature shift of about 0.3ºC for the period 2001-2007 remains to be experienced.

As adequate “corrections” for the surface record are impossible, extreme efforts have been made to try and prove that the MSU results are faulty. This has culminated in a claim by a paper from the NOAA (CSSP Report), Karl et al. 2006, published only on the internet, that the mean annual global surface temperature anomaly Figure 2) and the MSU record (Figure 4) have been reconciled, as the MSU results show the same “trend” as the surface record, attributed, of course, to greenhouse gases. This is because the temperature peak in 1998 caused by the El Niño ocean event of theta year, is more prominent in the lowere troposphere. If this event is ignored, the two records are very different.

I have recently shown (Gray 2007b) that the claim of “reconciliation” is untrue. For the major periods of the record, 1978-1997 and 2001-2007, the MSU record shows no temperature change. The rise in the surface record from 1976-1997 cannot therefore be attributed to greenhouse gas increases, since it is not evident in the lower atmosphere where it should be most prominent... Both records show no change over the second period, 2001 to 2007, which is itself convincing evidence that increases in greenhouse gases are not influencing global temperatures, however these are measured.

3.9 SEA SURFACE TEMPERATURE

You cannot hope to get near to an average global temperature unless you include the 71% of the earth's surface that is ocean. There are many temperature measurements made from ships, but the quality control is much worse than on the land, and even then, whole regions have no figures. Folland and Parker (1995) have claimed to have found a way of incorporating the data, but the American workers have never accepted this, and they have to resort to a whole host of dubious devices to claim that their figures are "global" It is very suspicious that incorporating the sea surface measurements seems to make little difference

4. TEMPERATURE OSCILLATION: GLOBAL, REGIONAL AND LOCAL

The IPCC does not seem to envisage that global temperatures might fluctuate or oscillate, perhaps accompanied by energy “imbalances in both directions, something Hansen et al (2007) cannot believe in, either. Schlesinger and Ramankutty (1994) identified an oscillation in the temperature of the global climate system of period 65-70 years by applying singular spectrum analysis to four detrended global-mean temperature records and to records from 11 geographical regions..

This oscillation has continued for the more recent surface records, and it can also be identified in a number of global, regional and local temperature records besides those studied by SR4. Although the surface records show a steady temperature increase imposed on the oscillation, this additional temperature increase is not present in many other records such as those shown here .. It therefore seems likely that this background steady temperature increase is an artifact of the methods used in the collection and processing of the surface temperature data rather than an indication of warming from increases in anthropogenic greenhouse gases.

S&R(1994**)** applied a statistical technique called “singular spectrum analysis” to four global-mean surface temperature records which had been detrended by means of a simple climate/ocean model based on the supposed radiative forcing due the increase in atmospheric greenhouse gas concentration. The result of this exercise as applied to the surface temperature record reported by Folland et al (1992) is given in Figure 5.

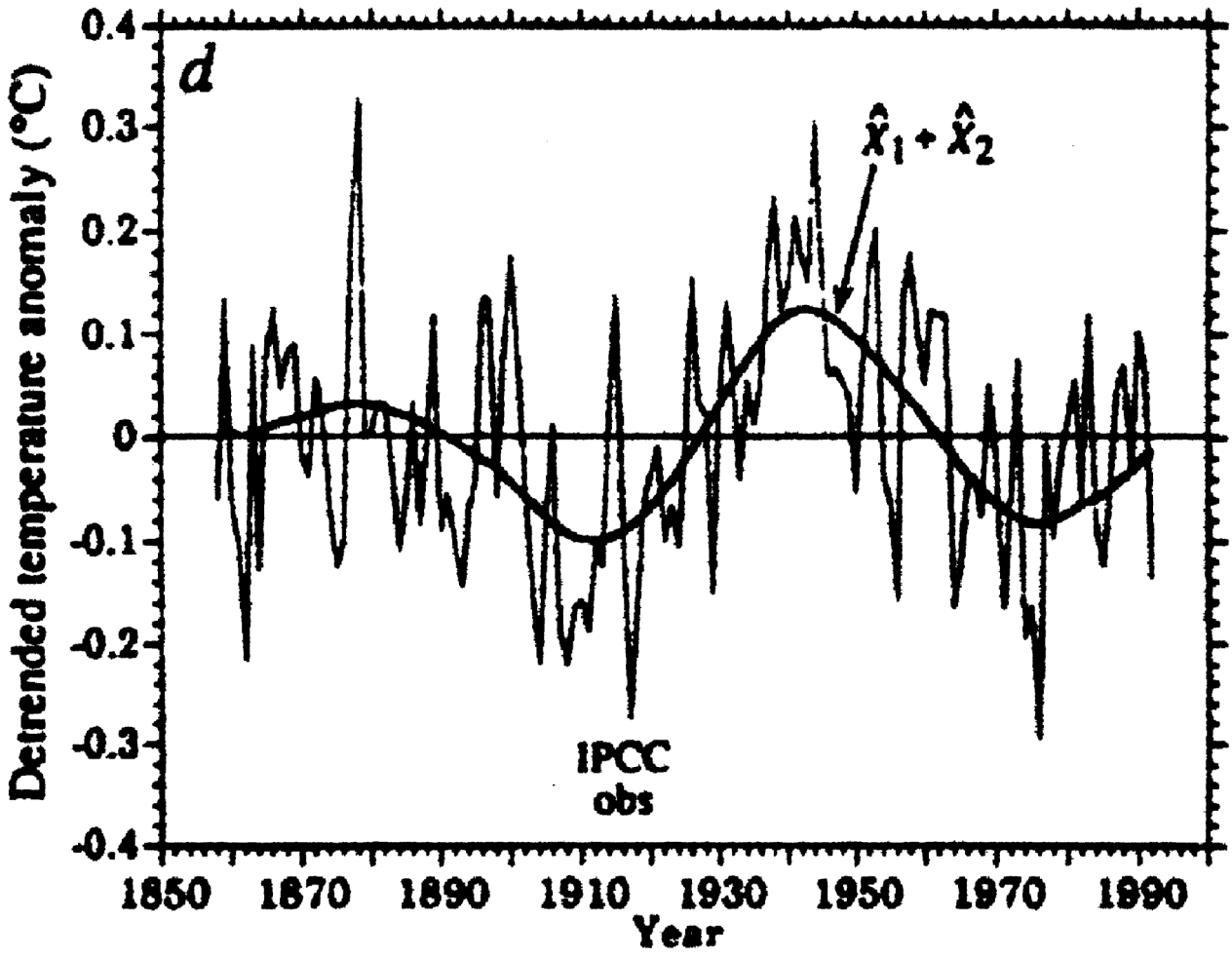

Figure 5. Global temperature oscillation identified by Schlesinger and Ramankutty (1994)

Three global-mean surface temperature records (Jones, Hansen, Vinnikov 1992) detrended by a simple climate/ocean model; compared with singular spectrum analysis of the same data. (Schlesinger and Ramankutty 1994)

The mean length of the oscillation identified was estimated as 65, 66, 70 and 69 years for the four temperature records studied.

S&R94 also applied the technique to 11 geographical subsets of the data of Jones et al (1991). Similar results were obtained for all regions, with the best agreement shown by North Atlantic, North America, and Eurasia.

In a later paper Andronova and Schlesinger (2000) removed the modelled effects of the supposed anthropogenic warming, volcanoes and the sun from the updated record of Jones (1999) and confirmed the presence and further progress of the previously identified oscillation shown in Figure 1 to 1999.

Klyashtorin and Lyubishin (2003) have recently independently confirmed this “quasi-cyclic fluctuation with about a 60 year period” in the surface record of Jones et al (2001), and they have demonstrated the existence of a variation of 50-60 years interval in reconstructed temperatures for the past 1000 years..

The oscillatory behaviour often appears to be discontinuous. For example, Trenberth (1990) identified a “climate shift” in the Northern Hemisphere between 1976 and 1977. Karl et al (2000) identified climate shifts in 1912, 1945 as well as the 1976 shift. All of these features are apparent in Figure 1 and it is a matter of opinion whether they should be considered sudden, or part of a more regular oscillation.

S&R94 and Andronova and Schlesinger (2000) ignored the important climatic effects of the various ocean oscillations. Trenberth et al (2000) focused on the most important one, the El Niño-Southern Oscillation of the Pacific and derived a linear equation which was used to remove El Niño from the surface record of Figure 2. This corrected record retains the oscillation of Figure 2, but fails to remove the very large El Niño of 1998 and for subsequent years.

This paper shows that the oscillation identified by S&R94 can be seen in a range of temperature records, both global, regional and local. In many of these the postulated anthropogenic contribution is .not evident.

The climate seems currently to have reached the peak of the oscillation identified, so this would seem to be the main reason for currently experienced warmer global temperatures. If the oscillation proceeds, it would be expected that temperatures will fall as they enter the downward phase.

4.1 GLOBAL TEMPERATURE

The updated surface temperature record of that used for Figure 3 (Brohan et al 2006), shown in Figure 5, confirms the 65-70 year oscillation for the more recent measurements where the expected peak of the oscillation seems now to have been reached and thereafter would be expected to decline in the next few years. The steady temperature increase supposedly due to anthropogenic causes seems, however to have ceased since 2002 .

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There are no alternative global instrumental records that extend as far back as 1850. The only alternative record going back to 1958 is that from radiosonde measurements in the lower troposphere. Figure 6 shows the radiosonde record from Thorne et al. (2004).

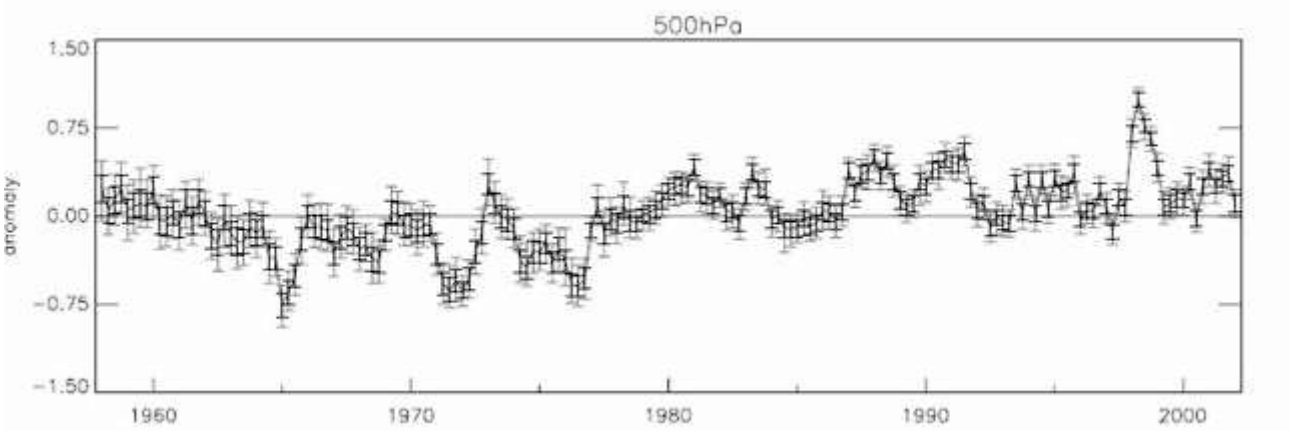

Figure 6 Global mean temperature record in the lower troposphere (500hPg) indicating 95% confidence levels (Thorne et al 2004)

Figure 6 fits fairly well to that part of Figure 5 since 1958 and confirms that the expected peak global temperature anomaly may already have been reached. It shows a “climate shift” in 1976. It does not display evidence of an additional steady rise which could be attributed to

anthropogenic greenhouse gas forcing. The most reliable and most accurate comparatively recent measure of globally averaged temperature anomalies is from the measurements in the lower troposphere of Microwave Sounder Units (MSUs) on NASA satellites since 1979. (MSU 2007) The most recent monthly global anomaly monthly record is shown in Figure 4.

Figure 4 shows little temperature change from its inception in 1979 until the large temperature anomaly caused by the El Niño ocean oscillation event of 1998. The period since then appears to correspond with the expected final peak of the oscillation depicted in Figure 5. There was a "climate shift" in 2001 after which steady temperatures have persisted until the present. . Again, this record shows no evidence of a long-term upwards temperature trend which could be attributed to anthropogenic greenhouse gas forcing,

4.2 REGIONAL TEMPERATURE

S&R94 already showed that the temperature oscillation they have identified can be seen in regional records, These can now be updated, The latest corrected record for the continental USA is shown in Figure 3 (Hansen 2007)

A comparable record for China is shown in Figure 7 (Zhao et al 2005). It incorporates the earlier records from Wang and Gong (2000) and also shows a subset of an early version of Figure 2 as the bold line graph PJO8SCN. (Jones personal communication),

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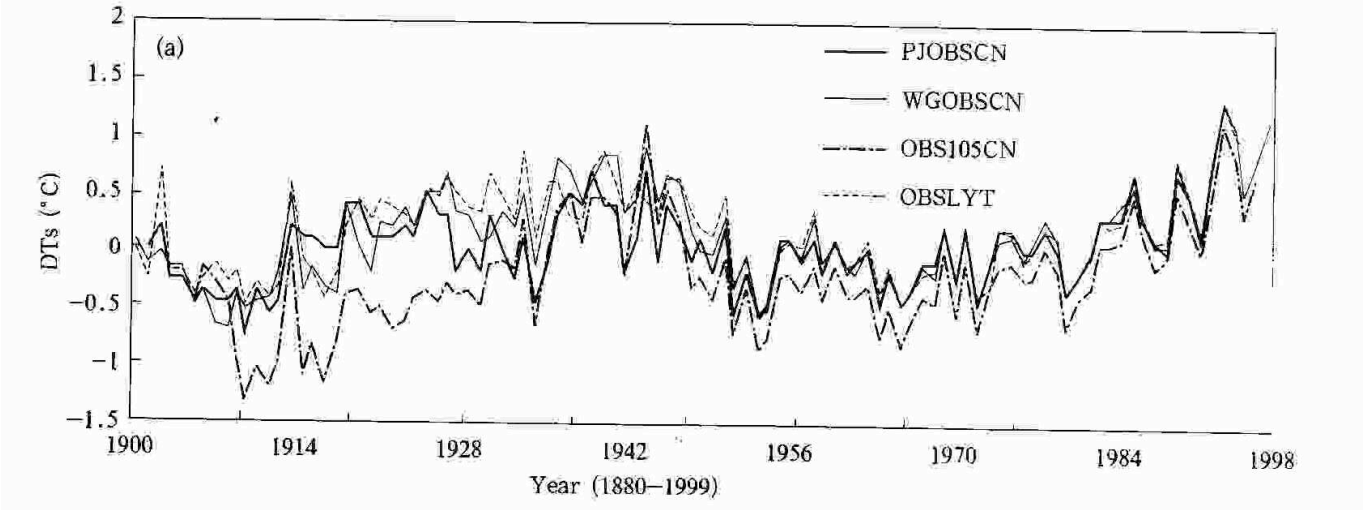

Figure 7. Temperature anomaly record for China (Zhao et al 2005).
Black curve from Jones (personal communication) the other curves from different Chinese investigators.

Both Figure 3 and 7 confirm the existence of the temperature oscillation identified in Figure 4 and they confirm that it has continued towards a likely current peak. They also show no signs of the supposed steady increase attributed to greenhouse forcing of Figure 2 for the 19th century.

4.3 .**LOCAL TEMPERATURES**

There are a few long-lived individual local temperature records where the local bias may have remained fairly steady and which give records that show the oscillation identified in Figure 24, . This effect is particularly evident in land regions in the Arctic where the last warm period was around 1940. The current clamour about melting in the Arctic is just a repeat of the situation in 1940, and is likely to decline in the same way. A number of these more reliable long-term local records are available on John Daly's (2007) and Hansen's (2007) websites.

.Recent surface temperature records, global, regional, and local, lower troposphere, have confirmed the existence of the oscillating global temperature regime with a repeat period of about 65-70 years identified by S&R94. The peak of the oscillation, which has now been reached, is therefore likely to be responsible for the warmer temperatures recently experienced, and the continuation of the oscillation after that means that global temperatures should fall within the next few years.

Most of the additional records do not show the steady temperature increase that is superposed on the oscillation in the surface records which is generally assumed to be due to anthropogenic increases in greenhouse gases. Since this rise is missing from most of the other records, its attribution to greenhouse gas forcing must be wrong. The rise most probably results from the biases and uncertainties connected with the compilation of the surface record.

Tsonis et al (2007) have shown that synchronous behaviour of the various ocean oscillations can provide an explanation for this 65-70 year global and local oscillation in temperature. The various climate shifts can be related to particular changes in the he El-Niño–Southern Oscillation (ENSO), the North Atlantic Oscillation (NAO), the Pacific Decadal Oscillation (PDO) and the North Pacific Oscillation NPO). There are also indications that a 60-year period in solar activity may also be involved (Niroma 2007)

A periodic temperature change on or above the earth's surface might be expected to lead to a periodicity in the radiative intensity of energy emitted from the earth. There is currently no evidence for such a periodic behaviour in earth's emission of energy. Keihl and Trenberth (1997) give a summary of measurements made for which they claim good accuracy, but reveal no trend. On the other hand Trenberth et al (2002) show much Interannual variability in energy emission, and considerable seasonal and regional variability as well, so a periodic tendency may be difficult to identify.

The oscillation hypothesis would expect higher than average energy emission from the earth at the peak of the oscillation, now present. Hansen (2005) claims that for the present higher temperature the opposite is true, based on models assuming anthropogenic greenhouse-gas and other forcings. He considers that his model is confirmed by the increasing heat content of the ocean, but this quantity does not show a simple linear increase, but is influenced by the oscillation of Figure 8. A definitive measurement of energy emissions from the earth over an extended period could decide between these theories, as would the rise or fall of global temperature over the next few years.

5. CARBON DIOXIDE

Tyndall (1865) showed that the chief greenhouse gas is water vapour. In order to find whether the influence of greenhouse gases is changing, it is necessary to have a record of water vapour concentrations everywhere in the earth's atmosphere for a past period. No such knowledge is possible, so no attempt to calculate its effects is possible. The attempt to study water vapour was therefore abandoned in favour of the next most important greenhouse gas, carbon dioxide.

It reminds one of the story of the man who lost his wallet on a dark night, and was found looking under the street lamp “because that’s where the light is”.

Carbon dioxide has its own challenges. Many measurements of atmospheric carbon dioxide have been made, since 1812, as recently documented by Beck (2007). They indicate that the concentration is highly variable. Trying to calculate “greenhouse forcing” from such a poorly characterised distribution is impossible. Keeling ((1989) has succeeded in suppressing all mention of the measurements now cited by Beck, and in imposing a rigid discipline on the measurements he sponsored, which are taken only over the sea, when the value appears constant for six or more hours (Manning et al 2007). In this way, and by a process of “smoothing”, “seasonally adjusting” and “annually averaging” he has created the illusion that carbon dioxide concentration in the atmosphere is a constant, so you can calculate the “radiative forcing” from its increase by use of a non linear empirical equation

The relationship between the additional radiation at the top of the atmosphere (The radiative forcing) ΔF, in W/sqm and the additional concentration of carbon dioxide *C* in parts per million by volume, over the reference level Co, is given by the formula (PCC 2001).

$$\Delta F = 5.35 \ln C/Co$$

Where ΔF is the radiative forcing in W/sqm, Co is the reference CO_2 concentration and ln is the logarithm to the base e

Beck (2007) showed that the concentration of carbon dioxide in the atmosphere varies between 280 ppmv and 400pmmv, or even more, depending on the time, place and wind direction.

The actual value of ΔF which should be based on the entire distribution of concentration values is skewed in the direction of the lower values of C, those below the arithmetical average because of the logarithmic relationship. This means that calculation of "radiative forcing" from the supposed "constant" or "well-mixed" average can be guaranteed to give an incorrectly high figure. A scientifically acceptable value is unknown, but is certainly much lower.

Arrhenius (1896) who first alerted the earth to the possible effects of carbon dioxide, was defeated by the fact that global temperatures fell for the subsequent 15 years, and then followed a period of two worlds wars and an economic crisis.

The global warming scare was then taken up by Callendar (1938), who chose his carbon dioxide figures to suit his theory (according to Beck 2007). He has been neglected by the IPCC together with all the other measurements identified by Beck.

He, also was defeated by the actual climate, as global temperatures fell from 1940 until 1976 . a period when climate scientists were scaring us with the coming ice age. The global warming cause was taken up again when the temperature started upwards in 1976. One wonders whether history will repeat yet again if the current absence of warming, for eight years so far, continues. For a while and then goes once more unto decline.

A recent survey (Robinson et al 2007) has shown that increased atmospheric carbon dioxide has no adverse environmental effects.

6. CAUSE AND EFFECT

The IPCC have taken full advantage of the ignorance of the public, and of many scientists, of the extent to which correlation can establish causation. Although a correlation, however convincing, does not prove a cause and effect relationship, the IPCC persistently violates this

principle by calling it “Detection and Attribution”, which are defined as follows in the Glossary to Solomon et al 2007-

Detection and attribution *Climate* varies continually on all time scales. *Detection* of *climate change* is the process of demonstrating that climate has changed in some defined statistical sense, without providing a reason for that change. *Attribution* of causes of climate change is the process of establishing the most likely causes for the detected change with some defined level of *confidence*.

However, as stated in Solomon et al (2007):

“As noted in the SAR (IPCC, 1996) and the TAR (IPCC, 2001), unequivocal attribution would require controlled experimentation with the climate system. Since that is not possible…”

So, claims that IPCC statements are “unequivocal” are not endorsed by the first volume of “Climate Change 2007”.

”Attribution, therefore means that a correlation can be given a statistical probability of showing cause and effect to a level of *confidence.”*

The IPCC applies this principle by assuming that all climate sequences which remotely resemble “projections” of models, possess a defined, numerical level of *confidence* that they represent cause and effect.

Simulations, where model results have their uncertain parameters adjusted to fir some climate sequences are taken to prove cause and effect to some level of confidence. Such a procedure used to be called “fudging”.

At the present time, any climate event, whether it is a flood, drought, wildfire, heatwave, frost, ice melt, is routinely “attributed” to “climate change” with usually high levels of “confidence” as a result of the application of this principle, which violates one of the most ancient of firm logical principles.

7. FORECASTING THE FUTURE

7.1. VALIDATION VERSUS EVALUATION

The First IPCC Report (Houghton et al 1990) had a Chapter "Validation of Models". When I pointed out that no model has ever been validated they changed the word "validated" to "evaluated" no less that fifty times in the nest draft

Computer models use a range of scientific "laws" and parameters to simulate the climate system. Computer engineers use a process called “validation” before the model can be considered suitable for use. This procedure requires not only an ability of a model to simulate past behaviour of a system, but it must also be shown capable of future prediction to a required level of accuracy over the expected range

No computer model of the climate has ever been validated in this sense. There is no discussion in any IPCC Report as to how such a process should be carried out.

Instead models are “evaluated”. This process falls far short of “validation”. In many cases it consists merely of an opinion that the parameters and equations in the model are generally

acceptable. They draw from the opinions of those who have a financial interest in the models, a series of levels of “confidence” to which spurious levels of “probability” are applied.

“Simulation” which may involve adjustment of the often inaccurately known parameters of the model to a climate sequence is also considered a successful “evaluation..

7.2 SCENARIOS:

Forecasting future climate would require a combination of a properly validated climate model with a “scenario” of future behaviour of the climate. The IPCC has developed several series of “Emissions Scenarios” which they combine with their “evaluated” models to provide future estimates of the behaviour of the climate.

They have, however, resolutely refused to check whether any of their scenarios actually comply with the future climate as it evolves. They even deny that this is possible:

"Since scenarios deal with the future they cannot be compared with observations” (Houghton et al 1995)

A study I made in 1998 (Gray 1998) showed that none of the early scenarios agreed with emerging reality and the later scenarios were no better (Gray 2002). They include a “projection” that the world coal industry production will increase 12.2 times by 2100, and another that the per capita income of South Africa will be four times greater than that of the USA by that date (Castles and Henderson 2003)

7.3 PREDICTIONS AND PROJECTIONS

Forecasting requires the combination of a properly validated model with a plausible and frequently updated system of futures scenarios.

The IPCC admit that they are unable to do this when they say

“Scenarios are not predictions of the future and should not be used as such” (Houghton et al 1992).

They have, as a result, refused to make any “predictions” throughout their reports. Instead they make “projections”, defined as follows (Solomon et al 2007. Glossary):

“Projections are distinguished from *predictions* in order to emphasize that projections involve assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realised, and are therefore subject to substantial *uncertainty”*

So here is an admission of the substantial uncertainty of all their “projections”, which is compounded by the fact that they do not attempt to check whether any of them correspond with the actual emerging behaviour of the climate.

7.4. THE OPINIONS OF "EXPERTS"

Having produced “projections” of the climate, based on “evaluated” models combined with unchecked “scenarios”, The IPCC was faced with the problem of “evaluating” these “projections” in a situation where they were unable to make “predictions” or “forecasts”.

Since there was no scientific way to do this they decided to rely entirely on the “opinions” of the “experts” who produced to models, most of whom have a financial interest in their success.

In order to render this system of what is essentially expert guesswork, they have erected a system of levels of “likelihood” for the various outcomes of their “projections. Each level is assigned a numerical “probability”, which has no scientific or statistical significance.

8 SINKING TUVALU

The sinking of the island of Tuvalu beneath the ocean, and other Pacific islands became an early environmentalist slogan. Unfortunately local measurement showed that it was not happening, so a research study was set up in 1991 at Flinders University, Adelaide with the firm order that Tuvalu must be made to sink. They replaced the tide-gauges of 12 Pacific Islands with the most modern equipment and they instructed them to show a steady rise. These were all in operation in 1994 and have now been going for 13 years

The project is a miserable failure. All the 12 stations show no tendency for their sea level to rise in 13 years. But the authors have found a way out. There was a hurricane in the Pacific in 1988 which caused a depression in all of the tide-gauges. When they run a linear regression, it shows an overall steady rise. The only trouble is that there was no sea level rise at all since 1999, and Tuvalu itself actually rose in 2005. But the belief is so strong nobody seems to care about actual facts like these (Hall 2006).

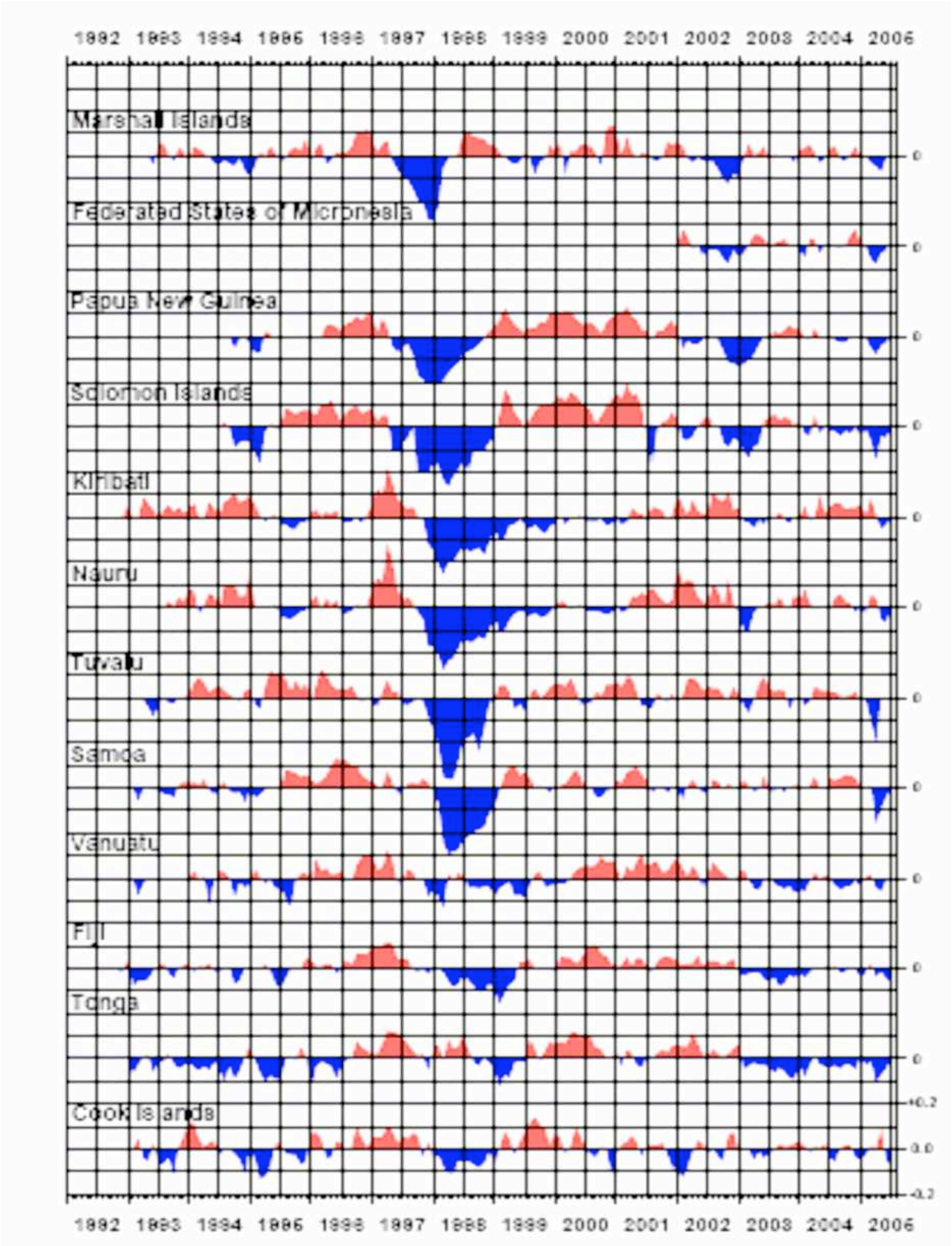

Figure 8 Sea Level records from 12 Pacific islands (Hall 2007)

9. CONCLUSION

These examples show that the IPCC depends on unsound and mathematically unacceptable methods to compile its “evidence” that human-induced greenhouse gas emissions are harming the climate.

The best statement of the reality of our current knowledge of the climate was made in Chapter 1, of Houghton et al 2001.

“The fact that the global mean temperature has increased since the late 19th century and that other trends have been observed does not necessarily mean that an anthropogenic effect on the climate has been identified. Climate has always varied on all time-scales, so the observed change may be natural”.

The authors of this true statement have been punished in “Climate Change 2007 (Solomon et al 2007), as the entire first Chapter has been replaced with a “Historical Overview of Climate Change Science”, which is little more than a publicity document for the IPCC.

The IPCC never makes "forecasts". But this does not seem to worry the politicians and the general public who do not understand that the gut feelings of people financially dependent on models are the only basis for these "projections". They cheerfully convert them in to certain forecasts, sufficient to consign the world to an economically damaging assault on energy supply.

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