

We Have Been Conned

- an Independent review of the
Intergovernmental Panel on Climate Change

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(This version, v2, makes some minor typographic corrections to the version found at http://scienceandpublicpolicy.org/images/stories/papers/originals/mclean_we_have_been_conned.pdf .)

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Executive Summary

The IPCC is a disgrace to science. In its desire to fit the square peg of science into the round hole of politics it has abandoned the "scientific method" and replaced it with a desperate search for data and other material that might support a specific hypothesis.

Its reports are not an honest assessment of climate because they omit, dismiss or distort research findings that do not conform to a certain belief, and if the IPCC was true to its charter it would focus only on any possible human influence on climate and not mention other climate forces, leaving that work to some parallel organization.

The IPCC was established on the basis of alarmist claims that were given a political dimension by organizations that, if they had any integrity, would have demanded better evidence for those claims than the output of primitive climate models (**chapter 1**).

The IPCC's key product, the various Assessment Reports, are the personal opinions from a cadre of selected authors and, contrary to their marketing spin, each passage of text is the consensus of a mere handful of people, many of whom quote their own papers or selectively omit information that does not support their bias. In one instance supporting material was not available so IPCC authors, accompanied by a few others, wrote a paper that the IPCC report could cite even though the paper had merely been submitted to a journal rather than published (**chapter 2**).

The peer-review system used by the IPCC is a travesty because it is nothing like the normal review prior to publishing scientific papers but only a means of soliciting further supporting information. Any suggestions that wider material be included are rejected, even if it means citing an IPCC's author's unpublished paper to do so (**chapter 3**).

The IPCC omits and distorts information to suit its agenda. We are not told, for example, that it seems likely that the Earth is currently cool compared to the mean temperature of the last 10,000 years and that the 650-year cold spell ending around 1850 was likely the longest sustained cold spell in 10 millennia. The IPCC hides, in a throwaway line, buried deep in a long paragraph, the critical fact that the amount of warming caused by increasing levels of carbon dioxide is logarithmic (i.e. will decrease as carbon dioxide increase). In the IPCC's latest report the discussion of the European heatwave of 2003 is contradictory and alarmist because chapter 3 provides a clear meteorological explanation but chapter 9 claims, on the basis of modelling by one of its authors, that human activity made the heatwave worse. Later the IPCC cites this modelling as if it was both accurate and credible when it is neither (**chapter 4**).

The temperature data cited by the IPCC is derived from thermometer readings just above the Earth's surface or just below the surface of the oceans. The data is so flawed and inconsistent, because the circumstances in which it is gathered are so dynamic, that it should be rejected. One wonders if the IPCC audited this data prior to citing it but, given that the agencies supplying it are supporters of the IPCC's claims, perhaps it felt no need to do so (**chapter 5**).

The IPCC's greatest fallacy is in its use and citing of climate models. The Assessment Reports show very clearly that knowledge of many climate factors is poor, which means that accurate models can't be created, but later chapters of the reports ignore those deficiencies and cite the predictions of models as if they were unchallengeable. Worse yet, these same models are used to attribute blame for variation in climate under the dubious notion that if observations agree with models that include a certain factor but disagree with the models if that factor is omitted, then it is evidence that the factor was the cause of climate variation. This line of reasoning, with the incomplete climate models, is not merely a rejection of commonsense but blatant dishonesty. What's more, the rationale behind this attribution means that blame can only be attributed to climate forces that are accurately modelled, and the IPCC mentions just one force that it considers to be in that category - manmade emissions of carbon dioxide (**chapter 6**).

The IPCC's so-called evidence for man-made warming was never strong to begin with but now it's completely undermined by the compromised integrity of the IPCC, the dubious temperature data and the climate models that are known to be inaccurate. (**chapter 7**).

The IPCC has no integrity and therefore no credibility. It is recommended that it be disbanded, along with the UNFCCC, and all responsibility for climate matters be handed over to the World Meteorological Organization. While the WMO is somewhat tainted by co-sponsoring the IPCC it has expertise in meteorological matters and has shown a willingness to consider a wider range of climate forces than the IPCC. (**chapter 8**).

This review sets out the facts according to mainly IPCC sources and provides examples of the relevant issues. By doing so it shows that the level of endorsement of IPCC claims is completely undeserved and is certainly not a suitable justification for attempting to control emissions of carbon dioxide or other climate-related legislation.

Preface

This document has been written in reaction to the independent review of the Intergovernmental Panel on Climate Change (IPCC) currently being undertaken by the InterAcademy Council (IAC).

I see little reason to expect that the IAC review will be truly impartial because the IAC has far too many close links with the International Science Union (ICSU), an organization that spent almost 30 years pressuring the United Nations for the creation of the IPCC (see chapter 1).

According to the IAC website¹, the 18-member board of the IAC has at least three people - Ralph Cicerone, Martin Rees and Kurt Lambeck - who head national science bodies, all of which are members of the ICSU. Howard Alper, also an IAC board member, is the co-chair of IAP, the global network of science academies, and most of those academies are ICSU members. Membership of the ICSU has the documented obligation of supporting its objectives, which means that already the IAC's independence is compromised.

The relationship is not merely via overlapping roles of individuals and the bodies they represent. The president of the ICSU is an official observer on the IAC board, and among the IAC's web links to "partner organizations" we find the ICSU listed prominently.

The IAC and ICSU have a very similar role. Both seek to fit the square peg of science into the round hole of politics, to take a field where truth is not determined by consensus and twist it to fit a field where consensus is everything. Both have grandiose statements of intent - the IAC's is "*Mobilizing the world's best science to advise decision-makers on issues of global concern*" - and both work very closely with UN bodies such as the UNEP, a co-sponsor of the IPCC.

The ICSU's modus operandi is to involve government and intergovernmental organizations in research projects where those organizations provide funding and ICSU members do the observations and research. The ICSU writes a report about that work and presents it to the client organization although rarely with any external peer-review.

The IAC makes similar statements about its work; in fact the IAC seems almost a twin of the ICSU in that it seeks to provide scientific input to governments and intergovernmental organizations and does so via reports.

The close links between the IAC, the ICSU and United Nations bodies like the UNEP make it very unlikely that the IAC review of the IPCC will propose radical changes because to do so would alienate a number of organizations and put its future work prospects at risk. As such it is likely that there will be only recommendations for minor changes, rather than the radical changes that are necessary.

Rather than make a submission to a review that is at risk, of being at best weak and at worst a whitewash, I have elected to release my own views on the matter via a different forum.

The first chapter of this review will deal at length with the scientific justification for the establishment of the IPCC by exploring the events, reports, individuals and organizations that played key roles.

Chapter two will show that the writing of IPCC Assessment Reports is a process open to bias by the authors, consensus about the text is far less than the IPCC implies and how IPCC authors have rallied together to produce papers for citing by the reports.

Chapter three will deal with the IPCC "peer-review" process, explain its fundamental flaw and show that it is nothing more than a means of soliciting further information to support the IPCC's arguments.

¹ Homepage <http://www.interacademycouncil.net/>

The fourth chapter will discuss the IPCC's distortions and serious omissions, the kinds of things that if published in unbiased fashion would have undermined its strident claims.

Chapter five will present the case that the IPCC's temperature data is unreliable and that the method of temperature measurement, the environment in which that monitoring takes place, the coverage of the Earth's surface and even the sources of the data are so dynamic as to cast doubt on the accuracy of the entire temperature record.

Chapter six will show that the climate models on which the IPCC relies for attribution and projection are seriously flawed because, as the IPCC indirectly states, they are incomplete.

Chapter seven will provide a short summary of the key problems with the IPCC's analysis of climate issues and show that the IPCC's claim of significant man made warming cannot be sustained.

The final chapter contains some brief recommendations for a climate monitoring and investigation system with far greater integrity than the IPCC has shown.

Because this is a review, examples will be provided where applicable. It should not be assumed that the examples are the only instances of problems related to the subject matter under discussion, nor that the authors and reviewers mentioned were the only people to act in a similar fashion.

When examining the IPCC reports my focus has been the contribution by Working Group I because the contributions by the other working groups are based on the assumption that WGI correctly describes the situation. For this reason I don't address matters such as plagiarism on the matter of Himalayan glaciers nor the citing of very suspect material in discussion of the Amazon rainforest and changes in the Antarctic.

Finally, let me state for the record that none of the work for this review was funded by anyone other than myself.

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August 2010

Chapter 1 - The dubious scientific justification for establishing the IPCC

Introduction

To properly understand how the IPCC grew to hold so much influence it is necessary to examine the relevant events and actions that led to its establishment and to then focus on the key players, the individuals and organizations who firstly drove its creation and then its power.

The casual observer might believe that the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) decided in the late nineteen-eighties to form a joint-venture to consider climate matters but in reality the pressure for the IPCC or some similar organization started building almost 20 years earlier and was driven by the beliefs of individuals, by politics and, very likely, opportunism. Exaggeration of claims, various deceitful omissions and a glossed-over desperate shortage of scientific understanding played their part, but so too did the environmental "blame human beings for everything" zeitgeist of the time.

Background events

In 1859, as part of an investigation into possible causes of Ice Ages, John Tyndall discovered that water (H₂O) and carbon dioxide (CO₂) could modify the transmission of heat. In 1896 Svante Arrhenius, likewise studying Ice Ages, estimated that a halving of atmospheric CO₂ could lower Europe's temperature by 4 to 5°C and out of interest calculated that a doubling would cause a temperature increase of 5 to 6°C. Within less than 10 years Arrhenius had reduced the magnitude of his predicted temperature changes but even this new figure was disputed by experts on the grounds that climate forces had been over-simplified, in particular ignoring the significant role of the upper atmosphere in radiating heat to space and that the radiation calculations were not for CO₂ alone but accidentally included water vapour (H₂O).

In 1931 American naval physicist E.O. Hulburt supported the findings of Arrhenius and in 1938 Englishman Guy Callendar concluded that the rise in temperature since the late 1800s was probably caused by the 10% increase in carbon dioxide that he estimated had also occurred across the period. Again the claims were disputed, this time because the historical CO₂ measurements were regarded as inaccurate and recent measurements were very variable, because the oceans very clearly absorbed most of the gas and again because of the question of the overlapping spectrum at which carbon dioxide and water vapour respectively absorb and emit radiation.

During the 1950s and 1960s the Cold War brought a greater urgency to many fields of science, among them radiation and computing. Weart (2003)² mentions that physicists Lewis Kaplan and Gilbert Plass independently created computations that showed that an increase in carbon dioxide would cause warming; a doubling would cause temperatures to rise 3 to 4°C. They too used very simplified models of the atmosphere, especially ignoring the possible changes to cloud cover and water vapour, but showed that *some* warming was to be expected even if the exact amount was in dispute.

A major question in the work by Kaplan, Plass and those who preceded them, was on the absorption of carbon dioxide by the oceans, in particular how much carbon dioxide was being absorbed and how rapidly this occurred. According to Weart (2003), Hans Seuss enlisted the assistance of Roger Revelle to study this and they concluded that a typical molecule of carbon dioxide was absorbed within about 10 years but Revelle's understanding of ocean chemistry led them to believe that the surface layer of the ocean would not absorb a huge amount of

² Weart, S (2003) *The Discovery of Global Warming*, Harvard University Press, with associated web pages via <http://www.aip.org/history/exhibits/climate/index.html>

carbon dioxide³, but in fact only about 10% of the amount estimated by people who didn't understand this chemistry.

"Finally in 1959 two meteorologists in Sweden, Bert Bolin and Erik Eriksson, caught on. They explained the sea water buffering clearly — so clearly that during the next few years, some scientists cited Bolin and Eriksson's paper for this decisive insight rather than Revelle and Suess's (only in later years was Revelle always cited for the discovery). The central insight was that although sea water did rapidly absorb CO₂, most of the added gas would promptly evaporate back into the air before the slow oceanic circulation swept it into the abyss." (Weart, 2003)

Timeline

The sequence of events from 1959 to the establishment of the Intergovernmental Panel on Climate Change (IPCC) almost 30 years later is most concisely described in a timeline of the key events through that period.

Timeline of events leading to the establishment of the IPCC

- | | |
|------|---|
| 1962 | The United Nations General Assembly invites the International Council of Science Unions (ICSU) to work along side the World Meteorological Organization (WMO) in developing a research program on atmospheric sciences |
| 1964 | Establishment of the ICSU Committee on Atmospheric Sciences, chaired by Bert Bolin |
| 1967 | Stockholm conference discussing requirements to build a model of the atmosphere. This conference led to the ICSU and WMO developing the Global Atmosphere Research Programme (GARP) project, with chairman Bert Bolin, which ran until 1980. |
| 1972 | UN conference in Stockholm proposes the creation of the United Nations Environment Programme (UNEP) and it comes into existence later this same year. |
| 1972 | Conference by the ICSU's Scientific Committee on Problems of the Environment (SCOPE) discusses circulation of various atmospheric gases and carbon. Bert Bolin involved. |
| 1974 | Stockholm hosts international study conference on the physical basis of climate and climate modelling, |
| 1975 | Swedish government asks Bert Bolin to summarise available knowledge about climate and this knowledge was incorporated into government bills that same year |
| 1978 | Vienna hosts a workshop by the International Institute for Applied Systems Analysis (IASA) workshop on climate issues, organized by ICSU, WMO and UNEP. SCOPE was heavily involved in this conference. |
| 1979 | Geneva hosts the first World Climate Conference, sponsored by ICSU, WMO and other interested parties. According to the ICSU, this conference "confirmed the long-term significance for global climate of atmospheric CO ₂ levels." |

³ Revelle, Roger, and Hans E. Suess (1957). "Carbon Dioxide Exchange between Atmosphere and Ocean and the Question of an Increase of Atmospheric CO₂ During the Past Decades." *Tellus* 9: 18-27.

- 1980 GARP terminated and replaced by World Climate Research Programme (WCRP) under ICSU and WMO auspices
- 1980 First Villach conference on climate, under the auspices of WCRP, produced no major findings because it believed that there were too many unknowns.
- 1983 Interim study conference organized by ICSU, UNEP and WMO and held under WCRP auspices began to gather material for the scheduled 1985 Villach conference.
- 1985 Second Villach conference, organized by ICSU, UNEP and WMO (with additional funding from Sweden), and targeted invitations to the attendees.
- 1986 ICSU's SCOPE releases report 29, for which Bolin was lead author, blamed greenhouse gases for climate change. This report would form the basis of the first IPCC Assessment Report.
- 1986 ICSU launches the International Geosphere-Biosphere Programme (IGBP), created on the basis of information produced by a working group chaired by Bert Bolin
- 1986 At a meeting of ICSU, WMO and UNEP a decision was made to set up the Advisory Group on Greenhouse Gases (AGGG), a body first suggested at Villach (1985)
- 1987 Publication of the Brundtland Report ("Our Common Future"), for the United Nation's World Commission on Environment and Development (WCED).
- 1987 Proposal for the formation of the Intergovernmental Panel on Climate Change (IPCC) with the UNEP and WMO to be its joint sponsors
- 1988 (June) WCED conference in Toronto calls for a reduction in carbon dioxide emissions to 20% of 1988 levels by 2005.
- 1988 (June) James Hansen testifies before US congressional committee on "the greenhouse effect" in Washington on a day with temperature of 101F. He had managed to arrange for the windows to be left open during the preceding warm night in order that the temperatures had maximum effect. The media's simplistic response to Hansen's claims on a hot day ensured that manmade warming became a high-profile issue in the USA.
- 1988 (November) First meeting of the IPCC, with the UNEP immediately making it clear that it believed CO₂ to be the cause of temperature change. AGGG abandoned because the work became a task for the IPCC

Key Events in the Timeline

The 1972 Stockholm conference that led to the creation of the UNEP was proposed in 1968, according to Bolin (2007), and he goes on to say that the possibility of human-induced climate change in global climate was just one of many justifications for that conference, air and water pollution being more important. He is therefore saying that as early as 1968 there was a belief that a rising concentration of carbon dioxide would influence atmospheric temperatures.

The 1985 Villach conference was also a key event. Its title leaves little doubt as to where its emphasis would lie - "Second Joint UNEP/ICSU/WMO International Assessment of the Role of Carbon Dioxide and other Greenhouse Gases in Climate Variations and Associated Impacts" - and how could such a grandiose title produce anything less than a grandiose conclusion? At this conference the ICSU and UNEP were already claiming that carbon dioxide emissions were the cause of recent warming and, along with the conference chairman, asked the participants

to determine appropriate policies. According to one attendee no consensus was reached but when Bert Bolin wrote the 500-page conference report⁴ he declared that a consensus about carbon dioxide and other greenhouse gases had in fact been reached. He repeated this by implication in the ICSU SCOPE 29 report⁵ of the following year when he, as chief editor, wrote the introduction to the report.

The 1987 publication of the Brundtland Report ("Our Common Future"), with its wider remit than just climate, further raised the profile of the claim of significant manmade warming. According to former WMO president John Zillman, this report "dramatically lifted the profile of enhanced greenhouse warming as a threat to the future of the planet"⁶.

Three further events

Although not directly the doing of the IPCC three further events played an important part in the IPCC gaining credence on the world stage. They also give some insight into the IPCC's influence and the level of support that it enjoys from national governments, support that suggests that radical recommendations for changes at the IPCC will be ignored because they might reflect badly on the judgement of governments.

The Toronto conference was held in June 1988, which was after the IPCC had been proposed but was prior to its first meeting. This conference produced a final statement that read, in part:

"The Earth's atmosphere is being changed at an unprecedented rate by pollutants resulting from human activities, inefficient and wasteful fuel use, and the effects of rapid population growth in many regions. These changes represent a major threat to international security and are already having harmful consequences over many parts of the globe . . . Far reaching impacts will be caused by global warming and sea level rise which are becoming increasingly evident as a result of atmospheric concentrations of carbon dioxide and other greenhouse gases."

Lanchbery and Victor (1995)⁷ says of this statement

"This was probably an overstatement, if not a distortion, of the scientific evidence, but it did serve to prompt a flurry of political activity. This activity was further reinforced by a series of hot summers and natural disasters in the 1980s, notably the hot summer of 1988 in the USA, which led to high-visibility hearings in the USA and created a momentum that did not die to do something about climate change."

In August 1988, two months after the Toronto climate conference, Malta presented a proposal to the United Nations General Assembly. This proposal, developed by maritime lawyer David Attard who lobbied the Maltese government, was to declare the atmosphere and climate to be "common good", i.e. the common property and responsibility of all countries, in a similar manner to which international maritime law declared the oceans⁸. The UN General Assembly passed a motion based on this proposal (GA resolution 43/53: 'Climate change as the Common Concern of Mankind') and consequently placed a legal obligation on countries to take action on

⁴ World Meteorological Organization (WMO) (1986) *Report of the International Conference on the assessment of the role of carbon dioxide and of other greenhouse gases in climate variations and associated impacts*, Villach, Austria, 9-15 October 1985, WMO No.661

⁵ SCOPE 29 report available at <http://www.icsu-scope.org/downloadpubs/scope29/index.html>

⁶ From <http://www.apec.org.au/docs/zillman.pdf>

⁷ Lanchbery, J. and D. Victor (1995), "The role of Science in the Global Climate Negotiations", in *Green Globe Yearbook of International Co-operation on Environment and Development 1995* (editors Helge Ole Bergesen, Georg Parmann, and Øystein B. Thommessen), Oxford University Press, 29–39

⁸ <http://www.um.edu.mt/newsoncampus/features/?a=62770> and <http://insiteronline.com/news/ban-ki-moon-unveils-climate-change-monument-at-uni/>

climate variability and any atmospheric emissions. In 1990 Attard was rewarded with his appointment as first holder of the UNEP Chair of Environmental Diplomacy⁹.

It was also the UN General Assembly, at the urging of Malta, that directed that an International Negotiating Committee (INC) be formed to negotiate the creation of an international body, operating under UN auspices, that would be a focal organization for this legal framework. The head of this INC was Jean Ripert, the principal French delegate to the IPCC and a former Deputy Secretary General of the UN.

The INC went to the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. Maurice Strong, the same individual who had arranged the 1972 Stockholm conference, arranged this conference, which came to be known as the "Earth Summit". The conference drew heavily on the IPCC's First Assessment Report, which was published with some urgency in 1990. The IPCC had held its first meeting in November 1988, which gave it less than 2 years to create this report. (Subsequent reports have been published every 5 years.) There was no time for the IPCC to undertake a comprehensive study as well as go through the sequence of drafts and reviews so this First Assessment Report was largely based on the ICSU SCOPE 29 report that IPCC chairman Bert Bolin had edited and partly written in 1986.

It was at this 1992 "Earth Summit" that the United Nations Framework Convention on Climate Change (UNFCCC) was established. One of its first actions was to unilaterally and deceitfully redefine the common expression "Climate change" to only refer to climate change that was directly or indirectly caused by human activity. It announced that "natural" climate change would be known as "climate variability" on the basis of a claim that natural forces could only account for short-term variability.

From this time forward, everyone who used the very common expression "climate change" would be reinforcing the UNFCCC's view that human activity was a significant influence on climate, and only those who explicitly talked about "climate variability" would be referring to "natural" change. One wonders if the meanings of the two terms had been swapped whether the notion of manmade climate change would have inveigled its way into the public consciousness as much as it has with the words "climate change".

The justification behind the claim that natural forces can only be short term is patently false. Land masses have moved over time and changed ocean circulation patterns; the Earth's tilt and orbit have changed and consequently modified the impact of solar radiation; Ice Ages have come and gone; the Earth has suffered extended periods of volcanic dust in the atmosphere and the consequent cooling and the Earth has experienced sustained periods when the Pacific Ocean favoured the development of El Nino conditions over La Nina conditions and vice versa. The UNFCCC's arbitrary division is pure sophistry and nothing else.

The Rio "Earth Summit" concluded that human activity was a major force on climate and not only did the UNFCCC announce this widely but, thanks to the legal framework constructed by Malta, it now had a means of enforcing obligations on all countries. Malta's reward for this work was the appointment of one its people to head the legal department of the UNFCCC.

By the end of the conference there was a UNFCCC that was loudly claiming that human activity was a very significant influence on climate. Ostensibly the IPCC was undecided and still looking for evidence, although chairman Bert Bolin was clearly in agreement with the UNFCCC despite the absence of credible evidence.

The IPCC was now in a bind of having to provide evidence to the UNFCCC, which was above it in the UN hierarchy by virtue of its establishment by the General Assembly. This pushed the IPCC in the direction of "finding" that evidence, but in its favour was the support of national governments that now had legal obligations regarding the "common good" atmosphere and climate, and of course chairman Bert Bolin was in agreement with UNFCCC views because, after all, he had written the "forefather" document, the SCOPE 29 report.

⁹ <http://www.iflos.org/en/summer-academy/overview/faculty/bio-attard.aspx>

The Key Players in the establishment of the IPCC

The timeline presented earlier shows that Bert Bolin, the ICSU, the WMO and the UNEP played key roles in the establishment of the IPCC. Let's look at the actions and statements of each in more detail.

1 - Bert Bolin

After graduating from Uppsala University Bolin undertook first a Master's degree (1950) and then a doctorate (1956) at Stockholm University, where Arrhenius had undertaken his work about 60 year earlier. Bolin's Masters degree in meteorology coincided with the start of his work on numerical weather prediction. Shortly after completing his doctorate Bolin moved into atmospheric chemistry, in particular studying the carbon cycle in the atmosphere.

On a visit to the USA in 1959 Bert Bolin reportedly predicted that the amount of carbon dioxide in the Earth's atmosphere would increase by 25% in the 150 years ending year 2000. It was also reported that he claimed that carbon dioxide was believed to be the cause for Earth's suspected warming trend of 2 to 3 F (1.1C to 1.7C) in the last 50 years and that carbon dioxide acted like glass in a greenhouse to keep heat from escaping into space but allowing the sun's rays to pass. All three claims were wrong¹⁰ but they were reported in Science News Letters¹¹ (see Figure 1-1).

When the New York Times published Bolin's obituary¹² in January 2008 it said

Dr. Bolin traveled to Washington in May 1959 and, according to The New York Times, told the National Academy of Sciences that a 25 percent increase in the amount of carbon dioxide in the earth's atmosphere during the 150-year period ending in 2000 could be expected. Carbon dioxide, he said then, was the cause of a warming trend of two to three degrees in the previous 50 years.

10 The errors in Bolin's claims are as follows: Carbon dioxide monitoring only began one year earlier and in 1959 the sampling of ice cores or using proxy techniques hadn't commenced, so statements about a period starting in 1851 were baseless. The HadCRUT3 temperature dataset indicates that annual average temperatures rose 0.38°C over 50 years 1910-59. The primary operation of a greenhouse is that it prevents the convection of warm air whereas "greenhouse" gases acquire heat energy by conduction and radiation, not convection, and release that energy by the same methods, with the radiation emitted in all directions rather than only downwards as Bolin implied

¹¹ The Science News Letter, vol. 75, No. 19, (May 9, 1959), p 296

¹² from <http://www.nytimes.com/2008/01/04/obituaries/04bolin.html>

Forecast 25% Increase In Air's Carbon Dioxide

► A 25% INCREASE in the amount of carbon dioxide in the earth's atmosphere during the 150-year period ending in 2000 A.D. has been forecast.

Dr. Bert Bolin of the University of Stockholm in Sweden told the National Academy of Sciences meeting in Washington that the burning of coal, oil and gas was adding carbon dioxide to the air at about one-half a percent each year. This is such a rapid rate the increase will be easily detected within a few years.

The increase in carbon dioxide in the atmosphere during the last 100 years, he said, is much more likely to be about eight percent than the usually quoted two percent. Carbon dioxide is believed the cause for earth's suspected warming trend of two to three degrees Fahrenheit in the last 50 years. It acts like the glass in a greenhouse to keep heat from escaping into space but allowing the sun's rays to pass.

Dr. Bolin said the application of his new figure to future climate changes is not well understood and called for further studies of the effects of carbon dioxide in the atmosphere.

Dr. Bolin's new rate for carbon dioxide addition is based on an examination of how this chemical affects the ability of ocean water to absorb it after a certain amount has been added. By doing this, Dr. Bolin said he had reconciled the two different values quoted for the increase in atmospheric carbon dioxide during the last 100 years.

The two percent value is based on comparisons of the radioactive carbon-14 compared to the usual form, carbon-12. The less reliable direct measurements give ten percent.

Science News Letter, May 9, 1959

Figure 1-1 - Bolin's incorrect claims of 1959 reported by Science News Letters

Rodhe (2007)¹³ says baldly in his obituary to Bolin

"In addition to his considerable scientific contributions, Bert [Bolin] also played a leading role in establishing and running many of the international research organizations we now take for granted."

But look closer and we find that these were mainly with the ICSU. Bolin was the first Chairman of the ICSU Committee on Atmospheric Sciences (CAS), established in 1964 to make use of atmospheric data made available by the advent of meteorological satellites. He also became the first chairman of the Global Atmospheric Research Programme (GARP) established on the initiative of CAS in 1967.

During the 1970s Bolin arranged several conferences in Sweden. Some were national but most were international. Among the latter was a 1974 conference on the Physical Basis of Climate and Climate Modelling, held just outside Stockholm. Bolin wrote a brief report of the conference¹⁴ and in it we find the person who in 1959 made bold predictions of temperature increases now saying:

"The results most certainly can be considerably improved by a more adequate formulation of for example cloud formation processes, turbulent heat exchange, radiative processes. More important in this context is the fact that the results are quite sensitive to the ocean surface temperature, amount of moisture available in the soil, and extension of snow and ice. These characteristics of the lower surface are, on the other hand, dependent on the atmospheric processes. Dynamic computations of the earth's climate therefore must include the feedback mechanisms that exist. This cannot be done unless adequate models for the

13 Henning Rhode (2007), "Bert Bolin (1925 -2007) A World Leading Scientist and Science Organizer" (an obituary from the Bert Bolin Centre for Climate Research), online at <http://www.bbcc.su.se/about-bert-bolin.html>

14 Bolin, B (1974), Modelling the Climate and Its Variations, *Ambio*, Vol. 3, No. 5 (1974), pp. 180-188, available via <http://www.jstor.org/stable/4312077>

oceans, the vegetation and soil moisture and ice and snow have been developed. Attempts in this direction are being made. Particularly important is the proper formulation of ocean dynamics. This is difficult because much more detailed observations are required in order to understand the most important features of the ocean circulation than are needed to understand the corresponding problem in the atmosphere, while in reality considerably fewer observations are available."

Note how the last half of the above paragraph discusses factors that are poorly understood. Later in that report, after listing 11 climate processes, Bolin said:

"Extensive further research is needed to improve our present and largely inadequate understanding of the role of these processes in the present context."

But that lack of knowledge doesn't restrict him in stating, in a passage about how models are used for sensitivity analysis,

"It should be stressed, however, that a single experiment of this kind must be interpreted with great caution for two reasons. Firstly a basic assumption is that other external parameters do not change and, secondly, only a few most important feedback mechanisms (positive and negative) that operate in reality have been included in the model. The experiment is of course still of considerable interest in view of the increase of the amount of carbon dioxide in the atmosphere that is taking place due to fossil fuel combustion..."

Bolin is implying that he's not bothered by the lack of understanding on other issues, which means that he doesn't care if they are much stronger forces than carbon dioxide or whether they act to counter any warming by carbon dioxide, he's only interested in this one force.

Bolin was a scientific advisor to Swedish governments, especially the socialist government led by Olof Palme who was a contemporary of Bolin's at Stockholm University and according to some people a close acquaintance. Perhaps due to Bolin's lobbying Sweden was a major player in climate issues at that time, hosting international conferences, funding conferences in other countries, and is said to have framed government energy policy according to Bolin's view.

Bolin was one of four editors of the ICSU SCOPE 13 report, "The Global Carbon Cycle", published in 1979¹⁵ and the only editor of the ICSU SCOPE 16 report, "Carbon Cycle Modelling" of 1981¹⁶. Both documents were influential in subsequent conferences and reports.

With the support of other organizations, he attained a high profile on climate issues, not least because of his repeated assertions about manmade warming, based on the output of his primitive and incomplete climate modelling. This high profile probably played a major part in him being appointed as chairman of various important climate conferences and workshops. From this position and as editor of co-editor of numerous reports he was able to exert an undue influence over climate concerns, even if at times that meant minimising uncertainties or distorting the level of dissent as he did when he reported to the surprise of at least one attendee¹⁷ that a consensus was reached at the 1985 Villach conference.

As noted in the timeline above, Bolin was also responsible for the SCOPE 29 report of 1986. This report formed the basis for the hastily assembled First Assessment report from the IPCC and went on to influence the establishment of the UN FCCC.

Bolin was offered the position of Chairman of the newly formed IPCC at its first session. He says (Bolin, 2007) that he was unprepared for the offer and consulted with Sweden's Minister for Energy with responsibility also for environmental matters, Birgitta Dahl, before accepting the position. His statement is somewhat surprising given that he had such a high profile in this

15 available online as <http://www.icsu-scope.org/downloadpubs/scope13/index.html>

16 online as <http://www.icsu-scope.org/downloadpubs/scope16/index.html>

17 personal communication with Dr John Maunder of New Zealand, Villach 1985 attendee

field. One wonders what other people Bolin might have considered to be competitors for the role.

If the IPCC wanted to project some semblance of impartial investigation then Bert Bolin was not a suitable chairman. Bolin was hardly likely to impartially and critically assess a belief that he'd held and made statements about for almost 30 years, these despite his admission that scientific understanding of climate was poor in many areas and accurate models could not be created until this situation improved.

On the other hand, Bolin was the ideal chairman if the organization was to reflect the views that he had been expounding. Bolin's claims would now address a wider audience and do so with more credibility and authority because they had the endorsement of the UN, moreover his chairmanship would attract like minds and discourage any dissenting voices.

It wasn't long before he made his views known. At the second session of the IPCC (Nairobi, June 1989) Bolin was in the chair and said:

"There are some key issues on which much uncertainty exists. For example, how much has climate changed in the last 100 to 150 years? How much have human activities contributed to such change? What will be the regional distribution of the expected climate change? Despite the uncertainties there is little doubt about the role of human intervention and its potential in causing these changes."¹⁸

He doesn't know how much climate has changed in the last 100 to 150 years and yet he's already convinced that human activity is to blame.

Bolin's chairmanship of the IPCC from 1988 to 1997 both set it on a path consistent with his own beliefs and ensured that it would continue to follow that path even after his tenure ended. Many of the failings of the IPCC can be attributed to Bolin's beliefs and character but it would be wrong to blame him for all of its ills.

2 - The ICSU

In almost every event leading to the IPCC's establishment in 1987 (see timeline) one finds the International Council of Scientific Unions (ICSU) - now named the International Council for Science - and, as we've just seen, Bert Bolin was deeply involved with ICSU observations, reports and conferences. But what is this organization that played such an important part in climate matters for the 25 years leading up to the establishment of the IPCC?

The ICSU says of itself "ICSU works at the intersection of science and policy"¹⁹ and in various of its documents that its mission is "to promote international science for the benefit of society", which it does by "inject[ing] the scientific dimension into policy discussions at the global level, particularly (but not only) within the UN system."²⁰

In its document "ICSU and Climate Science: 1962 - 2006 and beyond (From GARP to IPCC)" we find

"In the context of research collaboration, ICSU is effectively a bridge between the international scientific community, global governmental organizations and national funding agencies. ... The link with intergovernmental organizations, which is frequently manifest is co-sponsorship of programmes, ensures both that policy

18 from "Report of the second session of the WMO/UNEP intergovernmental Panel on Climate Change (IPCC)", online at <http://www.ipcc.ch/meetings/session02/second-session-report.pdf>

¹⁹ From

http://www.icsu.org/Gestion/img/ICSU_DOC_DOWNLOAD/2656_DD_FILE_ICSU_poster_policy.pdf

²⁰ http://www.icsu.org/1_icsuinscience/ARCH_75ANNIV_Achiev_Sustain.html

concerns are addressed in the research programmes and that the research outcomes are fed-back into the policy-making process."

And from later in the same document we are told that through the work of the ICSU, at the first World Climate Conference (Geneva, 1979), which the ICSU and WMO sponsored ...

"... 300 scientists from 50 countries considered the scientific evidence, and confirmed the long-term significance for global climate of atmospheric CO₂ levels, and the important role of the oceans in driving the natural variability of climate on seasonal to inter-annual timescales."

The remarkable nature of this statement will become even more obvious later when it is shown that after 20 years of work focussed on climate the IPCC has been unable to provide convincing evidence of the significance of atmospheric carbon dioxide.

And later again from that document:

"Influencing policy (the IPCC)

The various ICSU initiatives during the 1980s were crucial in establishing greenhouse gases as an object of national and international policy. In a sequel to the successful 1979 Conference that led to the creation of WCRP, ICSU and WMO sponsored a second World Climate Conference in Geneva in October 1990. That Conference was a further milestone in the recognition of the reality of climate change. It received the First Assessment Report from the Intergovernmental Panel on Climate Change (IPCC), produced under great time pressure, and paved the way for the UN Framework Convention on Climate Change and the 1992 Rio 'Earth Summit' on Environment and Development (where 154 States signed the UN Framework Convention)."

This paragraph shows how the ICSU seems to regard itself as a facilitator by which scientific research is undertaken with a view to influencing government and international policy.

The organization operates by pinpointing a certain scientific issue and developing corresponding program of research. Its 8-member executive council then will decide if the program will be supported and on that recommendation the ICSU general assembly will usually approve it. The ICSU undertakes no research of its own but forms research alliances with other agencies (usually United Nations bodies) and having those agencies provide the money for the work because the ICSU has little money of its own - 3.5 million Euros for the 5 years from 2002-2006 is only 700,000 Euros per year. According to the ICSU, when it is required to perform some work, usually the formulation of either the initial project or the recommendations to policymakers, various scientists undertake this work on a voluntary basis.

In almost every country the national scientific authority ("scientific academy, research council, scientific institution or association of such institutions") is a member of the ICSU and so too are many key international organizations for specific scientific fields. According to ICSU statute 8 of membership rules²¹ these members are required to "support the objectives of ICSU", which gives the ICSU extraordinary authority across all scientific fields. Members of the ICSU include the Royal Society in the UK and the National Academy in the USA and that seriously undermines the standing of the statements of support for the IPCC that both bodies have released since IPCC 4AR in 2007.

There are many disquieting aspects to the ICSU:

- (a) The ICSU's 8-member executive board ultimately decides that a project will be undertaken. This means that it evaluates for each project the benefit to society, but the methods that it uses remain a mystery.

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http://www.icsu.org/Gestion/img/ICSU_DOC_DOWNLOAD/216_DD_FILE_Statutes_October_2005.pdf

- (b) It relies on "selling" an idea to "client organizations" and having them provide the research funding. If the project is of no interest to these clients then no funding might be forthcoming, and when governments and intergovernmental work is involved we can assume a political dimension to that interest.
- (c) It seems likely that scientists can lobby the executive board into approving certain programs that are likely to find a research partner.
- (d) The ICSU has an interest in ensuring that members of its member organizations are employed (i.e. funded).
- (e) It produces no scientific papers that might be exposed to peer-review but provides policy advice in monograph (i.e. book) form. The output of research and the resultant policy advice receives no independent scrutiny, especially regards accuracy and the selective use of supporting material, and the ICSU is therefore in a position of being able to manipulate international and governmental policy. (Of course peer-review might be a waste of time if those reviewers were members of ICSU member organizations.)
- (f) The ICSU is not transparent in its decision-making or its actions. It discloses little enough information about its in-house work on current projects and only reports generated by past projects. No listing of the membership of past executive boards is available, nor is information about the development of past projects, which means that no information is available to the public about the formulation of ICSU projects, decisions made in relation to those projects, the manner in which they were conducted and the basis for any conclusions. In short it is impossible to identify the individuals responsible for the decisions to support each ICSU program and the integrity with which those projects were carried out.
- (g) When it comes to providing scientific advice to intergovernmental bodies the ICSU has held a very dominant position that has left little room for other voices. At least that was the case until the recent establishment of the InterAcademy Council (IAC), which is seems to occupy the same space and be either a sister organization or a competitor. (This situation makes a mockery of the IAC's supposedly independent review of the IPCC that is taking place during 2010.)

The hand of the ICSU can be seen in the entire lead-up to the establishment of the IPCC. It arranged most of the conferences and with its funding partners - usually the WMO and/or UNEP - it managed numerous meteorological or climatological research projects, many of which had Bert Bolin in a lead role.

The ICSU's SCOPE group declared in its first report (in 1971)

"Atmospheric carbon dioxide can influence climate through the 'green-house effect', i.e. it is transparent to incoming solar radiation but partially absorbs the outgoing longer wavelength energy emitted by the earth. The best current estimates suggest that by 2000 A.D. the effect of increased CO₂ alone will be an average warming of the global surface temperature by roughly 0,5°C." ²²

The certainty expressed in this statement is utterly at odds with the state of scientific knowledge at the time, but this kind of exaggeration and "activism" appears to be a common technique by which the ICSU attempts to influence policy.

If the ICSU was an honest organization then its statement would have been far more qualified and the actual level of scientific understanding would not only have been clearly stated but used to moderate the certainty with which claims were made. An organization with integrity

²² <http://www.icsu-scope.org/downloadpubs/scope1/index.html>

would not have promoted Bolin's views so actively until far more was known about all climate forces.

3 - The World Meteorological Organization (WMO)

The WMO is the obvious international partner when it comes to meteorological matters, so its involvement in various ICSU projects is no surprise. Its strength lies in meteorological observations and descriptions of the physical processes that might cause them, but in climate matters and politics it was rather a novice in the 1960s and 1970s, and arguably still today when others do the majority of the IPCC's work.

Meteorology *per se* is not a political matter and the WMO appears to have operated quietly and without the publicity-seeking zeal of organizations like the UNEP, which as we will see, has experience playing political games.

The WMO's role in the conferences and other events leading up to the establishment of the IPCC seems to have been minor. It was often a co-sponsor of conferences and was given prominent billing but there is no evidence that it was busy trying to construct climate models and make sweeping claims as others were.

In a frank article, undated but believed to have been written in 1997, John Zillman, the head of the WMO at the time of the establishment of the IPCC, said.

"The Intergovernmental Panel on Climate Change (IPCC) originated from proposals put forward during debate at the Tenth Congress of the World Meteorological Organization (WMO) in Geneva in May 1987. Several Directors of National Meteorological Services, especially from developing countries, called on WMO to establish a mechanism that would enable them to respond authoritatively to the increasingly frequent requirements to brief their Governments and national communities *on the reality or otherwise of the threat of global warming as a result of increasing atmospheric concentrations of greenhouse gases*. For the most part, Governments, at that stage, were reacting to sensationalised media coverage of predictions of future climate change promulgated by a number of individual scientists and climate modelling groups, as well as the then recently released report of the Brundtland Commission on 'Our Common Future' (The World Commission on Environment and Development, 1987) which had dramatically lifted the profile of enhanced greenhouse warming as a threat to the future of the planet."²³ [*my emphasis*]

Zillman's comments are at odds with what might be a "revisionist" history of WMO involvement with the IPCC. At the opening plenary of the 29th session of the IPCC (August 2008), the Secretary General of the WMO, M. Jarraud, said:

"At this propitious ceremony it is opportune to recall that, while it is widely recognized today that human activities are modifying climate at an increasingly alarming rate, such was not the case *in 1976 when WMO issued the first authoritative statement on the accumulation of carbon dioxide in the atmosphere and the potential impacts on the Earth's climate*. In February 1979 WMO organized the First World Climate Conference as a result of which, only a few weeks later, the Eighth World Meteorological Congress (Geneva, May 1979) launched WMO's World Climate Programme (WCP). The conference also led to the establishing in 1980 of the World Climate Research Programme (WCRP) by WMO and the International Council for Science (ICSU) and, subsequently, also with UNESCO's Intergovernmental Oceanographic Commission (IOC). ...

²³

From <http://www.apec.org.au/docs/zillman.pdf>

"Very intensive scientific work followed, which ultimately led to the milestone Villach Conference in October 1985, organized by WMO, UNEP and ICSU, which produced a consensus statement on the probable magnitude of climate warming and its implications. Thereafter, in 1987, the Tenth World Meteorological Congress formally recognized through its Resolution 9 (Cg-X), that national and international studies had *led to the conclusion that a global climate change would ensue from increases in the concentrations of greenhouse gases and that this climate change could have potentially serious consequences on society.*²⁴ [my emphasis]

This is not the only instance of the WMO claiming to have first signalled the possibility of a human influence on climate back in 1976, but documentary evidence to support these claims is elusive.

When the IPCC was established, several government representatives at the WMO moved across to the new organization, among them John Houghton, head of the UK's Met Office, who was immediately appointed to head IPCC Working Group I, which would deal with the "scientific basis".

Today the contribution from the WMO to the IPCC seems relatively minor. It provides office space on the 8th floor of its head office in Avenue de la Paix, Geneva, for the small group of about 35 permanent employees of the IPCC but temperature data is supplied to the IPCC by other sources and even meteorological descriptions of weather events appear to be from individuals and papers rather than from the IPCC.

One other facet of WMO involvement is that it provides information about Climate Change on its web pages²⁵. Follow the appropriate links and one finds a page with the headline "The Science" but this merely echoes the IPCC's assertions and lists five points, three of which say what "will" happen, one saying what "could" happen and the other blithely saying "Seven of ten disasters are now climate-related" without defining a "disaster", the period to which the statement applies or stating whether that number has increased or fallen. Most ridiculous of all is that the web page headlined "The causes of Climate Change" opens with the UN FCCC's misbegotten definition of "Climate Change", rather than the IPCC's more measured statement, and then discusses the greenhouse gas "blanket" that it claims prevents heat loss to space, which is a poor analogy when a blanket's function is to prevent warm air rising away from the body.

To summarise the situation, the WMO was a minor participant in the establishment of the IPCC, providing only certain individuals, some meteorological interpretations and a certain degree of credibility whose absence might have been remarked upon had the WMO not been involved. In more recent times the WMO has seen the direction in which the wind has blown and acted accordingly, although at times with doubtful ability.

4 - The United Nations Environment Programme (UNEP)

The UNEP was established in 1972 following the UN Conference on the Human Environment held in Stockholm, which according to Bolin (2007, pg 27)²⁶ was due to a Swedish initiative. The UNEP's focus was mainly to address pollution in various forms, a not unreasonable notion at that time.

Given the state of the environment at the time it naturally gained the support of various "environmental" organizations and its intergovernmental position encourages sovereign countries to establish environmental protection agencies to address similar issues at a local level. Its ready acceptance by governments and the community at large has seen some of its shortcomings and failures ignored. Its claim about "acid rain" killing trees were greatly exaggerated because it was subsequently shown that tree deaths were not as extensive as

²⁴ see <http://www.ipcc.ch/meetings/session29/wmo-st-20-ipcc-anniversary.pdf>

²⁵ WMO homepage <http://www.wmo.ch>

²⁶ see earlier for full reference

claimed, the deaths in some regions were due to natural causes and only in a small part of central Europe were those deaths attributable to local industrial pollution.

The UNEP also led the charge to ban chlorofluorocarbons (CFC's) in fear that they damaged the ozone layer. The scientific basis for this ban, referred to as the Montreal Agreement, remains controversial because very few published papers show a direct link between CFCs and ozone, moreover questions remain about the credibility of those papers. On top of this, the ozone hole over the Antarctic has hardly diminished, let alone disappeared, in the 15 years since the 1995 ban, besides which the hole may have existed long before it was first observed and before CFCs were in common use. (As a point of interest, Robert T Watson was a major UNEP player for this ban on CFCs and Watson went on to chair the IPCC from 1996 to 2001.)

There's no denying that the UNEP was a natural partner of the WMO in ICSU projects that observed the atmosphere; no other UN body had a greater claim to the position. The problems arose however when the UNEP moved from being an observer of the atmosphere to an activist that supported the claims of Bert Bolin with his immature climate models.

If the UNEP behaved responsibly it would have told Bolin that his findings were interesting but the output of his models had little credibility while so many other climate forces were poorly understood. Perhaps that position would be an anathema to an organization whose public approbation was running so high and was thought could do no wrong.

The manner in which the UNEP handled the shortfalls in climate modelling is unfortunately a picture of the political gamesmanship that it practiced. The head of the UNEP from 1975 until 1992, which was after the establishment of the IPCC, was Mustafa Tolba (sometimes Mostafa), a man widely regarded as having an authoritarian management style²⁷.

An example of Tolba's instigation is mentioned in Bert Bolin's obituary, written by Rodhe

"During the 1980s, the need for better collaboration between geoscientists and biologists became evident. Stimulated by Mustafa Tolba (then the Executive Director of UNEP), Bert in 1983 began a UNEP-supported project to look into the links between physical climate and global ecosystems."²⁸

In a 2007 interview Tolba listed what he regarded as important factors in reaching the political consensus that led to the Montreal Agreement on CFCs²⁹:

- commitment by a core group of countries
- a scientific consensus [or the pretence of one and that it was somehow relevant]
- having strong personalities to project the claims (" In the end, everything boils down to individuals and personalities.")

He went on to say that mobilizing public opinion is essential in environmental negotiation and commented on using "reputable scientists" to interest the media and galvanise public opinion:

"The framework Vienna Convention was agreed in a climate of only mild interest: neither the NGOs nor the media had drawn enough attention to the ozone problem to arouse the public. But when reputable scientists reported that the ozone layer was being depleted above the Antarctic and that the likely results would be increased risks of cancer, cataracts, and crop failures and reduced immunity, the media responded with headlines and an aroused public pressed for quick action.

²⁷ see Paul Berthoud's comments in <http://www.edinter.net/paulberthoud/narrative/>

²⁸ <http://www.bbcc.su.se/about-bert-bolin.html>

²⁹ from "Lesson Learned" by M.K. Tolba, in The UNEP's "Our Planet" magazine, September 2007, under the theme "Celebrating 20 years of the Montreal Protocol", online at <http://www.unep.org/PDF/OurPlanet/2007/sept/EN/ARTICLE2.pdf>

Citizen groups and NGOs demanded and got the swift negotiation, adoption and entry into force of a viable control mechanism."³⁰.

Of the above the most important is probably the mobilizing of public opinion, a technique that the UNEP practiced to bypass other scientists but to directly addressing policy-makers and the public through a helpful media. This technique ensured that politics took precedence over science, but it was the politics of coercion with an implied threat of unfavourable voter reaction if politicians did not uphold the UNEP view.

Great similarities can be seen between the UNEP and the IPCC, not just in the above factors but also in:

- making bold claims before the science has been proven
- citing the output of models before the level of scientific understanding is sufficient to create accurate models
- ignoring, downplaying or attempting to discredit data or hypotheses that refute the claims.
- the reluctance to admit that it might have exaggerated its claims, cited false papers or otherwise been in error.

According to Agrawala³¹, the establishment of the IPCC was not so much driven by the 1985 Villach conference,

"... [i]nstead, the trigger for the IPCC was the activism by Mostafa Tolba, the dissatisfaction in the US about the AGGG, and sharply differing views on climate change amongst various US government agencies and the White House administration. The subsequent shape the IPCC took reflected a common denominator agreement between various US agencies. Reportedly there were also strategic attempts both by WMO and the US to prevent Mostafa Tolba from "capturing" climate, the way he had, ozone."

On the subject of the establishment of the IPCC, Agrawala shows that the UNEP's activism had made others uneasy:

"... while WMO was a natural sponsor for such a process, it did not have sufficient expertise to cover many other relevant aspects of climate change such as policy responses. This argued for UNEP involvement though the US had some reservations about Mostafa Tolba. This is because he had alienated many close allies of the US in Latin America during the ozone negotiations. There was thus a keen interest on the part of the US not to let Tolba run climate change with the same degree of control which he had wielded over ozone. Therefore, a proposal was made for a joint UNEP/WMO intergovernmental mechanism. ICSU, the only other candidate in the international arena to co-host such a body dropped out partly because it was more interested in global change research (as opposed to policy), and perhaps due to definitional reasons: the US proposal was for an intergovernmental mechanism while ICSU was non-governmental."

The IPCC's mandate

At the time of the establishment of the IPCC its mandate was quite extensive³²:

30 Tolba made a similar comment about involving politicians and the public on page 6 of "Report of the Third Session of the First Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol", online at

http://www.unep.org/ozone/Meeting_Documents/oewg/1oewg/1oewg3-3.e.doc

31 Agrawala, S (1997) "Explaining the Evolution of the IPCC Structure and Process", Belfer Center for Science & International Affairs, Harvard University

- (a) Identification of uncertainties and gaps in our present knowledge with regard to climate changes and its potential impacts, and preparation of a plan of action over the short-term in filling these gaps;
- (b) Identification of information needed to evaluate policy implications of climate change and response strategies;
- (c) Review of current and planned national/international policies related to the greenhouse gas issue;
- (d) Scientific and environmental assessments of all aspects of the greenhouse gas issue and the transfer of these assessments and other relevant information to governments and intergovernmental organizations to be taken into account in their policies on social and economic development and environmental programs.¹

As we saw earlier, within just a few years the IPCC was directed to provide support to the UNFCCC.

More recently the IPCC describes its role³³ as

"... to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation."

You will notice that this mandate implies that human-induced climate change is a fact. More importantly the mandate says nothing about investigating other climate forces, so when IPCC reports address these other forces it is failing to comply with the limits of its mandate. As this review will show, the IPCC also fails to be objective, comprehensive, open and transparent.

Summary

The establishment of the IPCC was based around the hypothesis of a significant human influence on climate driven by a combination of politics, ideology, lobbying and the blatant disregard of the relatively low level of knowledge of other climate factors.

A charitable person might suggest that Bert Bolin, the ISCU and UNEP were simply over-enthusiastic in their dismissal of other possible climate forces and their flag waving over carbon dioxide was because it could be modelled. I am no such person because I interpret their actions as being driven primarily by ego and agenda, and that their failure to ensure that other climate forces were properly investigated was very deliberate because positive findings about those other forces would bring no kudos. It's either that or foolishness, and I don't believe that any of the players can accurately be accused of that.

Without studying the relevant documents held by Bolin, the ICSU, UNEP and WMO it is impossible to be certain of the ultimate events that led to the formation of the IPCC. One can however speculate based on the timeline and the discussion of relevant parties that was shown earlier and say that it seems likely that:

- In the 1950's Bert Bolin became interested in applying the new technology that was becoming available to meteorologists, particularly computers. When his attention shifted to atmospheric chemistry he became aware of the work by Arrhenius and saw that the mathematical formulae presented in that work could be described by computer software. By ignoring or simply estimating - probably with varying accuracy - other climate forces that were poorly understood, Bolin's models produced output that purported to show that manmade emissions of carbon dioxide caused warming. In various documents and presentations Bolin admitted that other forces were poorly understood but nonetheless insisted that his modelling of carbon dioxide showed conclusive evidence of its influence.

³² from IPC 4AR WGI chapter , online at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter1.pdf>

³³ <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf>

- The ICSU became aware of Bolin's claims and, because these claims resonated with the notion of "science for the benefit of society", the small but highly influential ICSU executive board readily accepted them. The ICSU seeks to influence national and international policy so it approached its usual United Nations partner, the UNEP, and it too adopted Bolin's claims, perhaps in part because Bolin was implying that human activity was causing environmental damage, the opposition of which was part of the UNEP's *raison d'être*. The UNEP then adopted the technique that it was using in its claims about CFC's damaging the ozone layer, and in particular directing its statements to policy-makers or the general public in order that other scientists and scientific advisors could not undermine them.
- Neither the ICSU nor the UNEP appears to have questioned the integrity of Bolin's claims and in particular why the claims should be accepted when other climate forces were poorly understood. Both organizations seem to have been totally enthralled in science that might support and enhance their own reputations.
- The WMO became involved with the sponsorship of numerous workshops and conferences in support of the cause, and in several cases the Swedish government that Bolin was advising provided financial or other assistance. This is understandable given that the ICSU was promoting an increase in meteorological observations as well as observations of the chemical composition of the atmosphere, the latter of course in support of Bolin's notions.
- From his position as leader or chairman of many of these projects, conferences and meetings Bolin had ample opportunity to control the proceedings and any public statements or reports that they generated, and thus virtually determine the agenda on climate issues.
- Almost 30 years of Bolin fanning the flames, and not much less by the ICSU, finally paid off when firstly the claims of the ICSU, UNEP and WMO proved impossible for the United Nations General Assembly to resist and it pressured the UNEP and WMO into joint sponsorship of a new organization called the Intergovernmental Panel on Climate Change. The second pay-off came when at the first IPCC meeting the head of the UNEP promptly nominated Bolin as chairman and thus determined the IPCC's path in its formative years.

Bolin's claims about a significant human influence stemmed mainly from the fact that the action of carbon dioxide was relatively well known, albeit only in a context of theory and laboratory work rather than the open atmosphere. That warming could be described mathematically when other forces could not (and even today can not).

Claims that featured the action of carbon dioxide and ignored other climate forces received widespread publicity and neither Bolin, the ICSU nor the UNEP appear to have taken any action to clarify the situation.

The fact remains that no credible evidence for a significant human influence on climate was produced prior to the establishment of the IPCC, which means that the organization was based upon speculation and belief far more than on scientific evidence.

With Bolin in charge, and backed by the fortunate (for him) establishment of the UN FCCC, there was no doubt that the IPCC would adopt a certain line of belief, and that is exactly what it has done for over 20 years. As we will see in the following chapters, the IPCC has failed to produce even one piece of irrefutable evidence and continued to make wild predictions - artfully disguised as "projections" - based on the output of climate models that it recognizes are incomplete, which by extension must mean they are inaccurate.

Chapter 2 – Flawed authoring of IPCC reports

The IPCC's Assessment Reports are supposed to be a summary of the current science. In order to write these summaries the IPCC adopts a 3-level hierarchy of authors. At the top are *Coordinating Lead Authors*, who have responsibility across the entire chapter, then *Lead Authors* who focus on specific sections in accordance with their expertise and finally *Contributing Authors* who offer draft documents that discuss specific issues but without any obligation on lead authors to use that material.

Immediately we can see that the IPCC's claims of consensus among a large number of authors is false. Any passage of text is in fact the product of a Lead Author, perhaps drawing on the work of one or two Contributing Authors and the text is approved by the Coordinating Lead Authors, which typically number two. In other words the text is a consensus of only about five people.

The final draft of each chapter of the report was approved by a plenary, but it was a plenary of government representatives whose knowledge of the subject matter presented in a chapter is likely to be variable across the representatives and across the subject matter covered by any chapter, let alone across the entire contribution from an IPCC Working Group.

IPCC procedure 4.2.2. states:

"The composition of the group of Coordinating Lead Authors and Lead Authors for a section or chapter of a Report shall reflect the need to aim for a range of views, expertise and geographical representation (ensuring appropriate representation of experts from developing and developed countries and countries with economies in transition). There should be at least one and normally two or more from developing countries. The Coordinating Lead Authors and Lead Authors selected by the Working Group/Task Force Bureau may enlist other experts as Contributing Authors to assist with the work."

The first sentence is not a directive but merely an aim, so those people who decide on the individuals to be Coordinating Lead Authors and Lead Authors can completely ignore it. This is exactly what they do for chapters with narrow subject matter or when, like in the chapter that seeks to blame human activity for temperature change, a certain perspective is required. The second sentence of the IPCC procedure relating to the selection of authors is fine from a social perspective but surely it is the authors' scientific qualifications that should take precedence, not their country. And the final sentence, about Contributing Authors, provides carte blanche to assemble a team of authors that will promote the views of the Coordinating Lead Authors and Lead Authors.

The consequences of the IPCC procedure for selecting authors can be seen in the key chapters of the last two IPCC Assessment Reports. The pivotal ninth chapter of IPCC 4AR had 53 authors (2 Coordinating Lead Authors, 7 Lead Authors and 44 Contributing Authors) more than 40 of whom were in a network of people who had co-authored papers with each other or were subordinate to each other by employment or in a supervisor-student relationship. This network of co-authors is evident from the cited papers for this chapter, forty percent of which have at least one chapter author among the authors of the paper. We can also surmise it is likely that some had acted as referees for others' peer-reviewed papers. Virtually all were involved or employed in situations related to climate modelling and therefore had a vested interest in promoting that field.

The key chapter of the Third Assessment Report of 2001, chapter 12, was only slightly less of a clique. It had 2 Coordinating Lead Authors, 4 Lead Authors and 28 Contributing Authors but 23 of these 34 people were in a similar network of co-authors, in fact even the two Coordinating Lead Authors had teamed up to write scientific papers, and 3 of the 4 Lead Authors had also written papers with the Coordinating Lead Authors.

There is no evident range of views or expertise in these two examples, and that makes a mockery of the IPCC's procedures and its claims.

Authors who resigned in protest

It is not unheard of that Contributing Authors resign and two who resigned from the 4AR are Dr Paul Reiter and Chris Landsea.

Reiter, an expert in mosquito borne diseases at the Institut Pasteur, Paris, wrote a contribution to the chapter on human health and declared that based on historical evidence and his own research there was no reason to believe that malaria would spread as a direct consequence of any warming. The IPCC ignored his comments and claimed that the opposite situation was true. In response Reiter contacted the IPCC and requested that his name be removed from the list of authors for that chapter because he had no wish to be associated with such comments. The IPCC refused to do so, stating that because he had contributed material to the chapter his name should appear, and Reiter had to threaten the IPCC with legal action before it would remove his name³⁴.

Landsea, an expert on hurricanes, was appointed as a contributing author for the section of the 4AR that would deal with this subject. Landsea had previously expressed scepticism about the notion that a warming climate would produce a greater number of hurricanes but before he submitted a document the chapter's Coordinating Lead Author, Kevin Trenberth undermined him by publicly stating that warming would cause more hurricanes. Landsea resigned saying that the IPCC's neutrality had been undermined by Trenberth's comments and expressing disappointment with how the IPCC handled the situation³⁵.

IPCC Authors who promote their own papers and views

Other IPCC authors have featured their own papers, among them Judith Lean and David E Parker.

Lean was the only Lead Author who was a solar physicist for chapter 2 of the IPCC 4AR, so it follows that she very likely wrote section 2.7.1 (begins on page 188 of 4AR), which deals with solar variability and forms part of section 2.7, "Natural Forcings". Section 2.7.1 is about five pages long, with a table entirely occupying one of these, and, in the space of those few pages, papers written by Lean are cited a total of 41 times.

Presumably it was also Lean who responded to reviewers' comments for this section and among those responses we find

- a paper, noted as "Lean, 2005, Submitted to GRL", being used to reject two reviewers' comments. (The paper is not listed in the references to chapter 2 in the published report)
- an admission that the solar radiation data was a composite record with extrapolated variations, rather than a clear unambiguous record
- an admission that there is convincing evidence of a link between solar variability and climate but making this public would undermine the credibility of climate models because they cannot reproduce the correlations
- an admission that empirical relationships between the sun and climate have been demonstrated in various papers but comments about these are omitted because of space limitations.

³⁴ Some of the background, although not the threat of legal action, is described in <http://www.publications.parliament.uk/pa/ld200506/ldselect/ldconaf/12/12we21.htm>

³⁵ http://sciencepolicy.colorado.edu/prometheus/archives/science_policy_general/000318chris_landsea_leaves.html

Apart from the matter of self-promotion this looks like the selective omission of information that might be damaging to various IPCC claims.

David Parker was a Lead Author of IPCC 4AR chapter 3 and given that he wrote a paper that attempted to dismiss the urban heat island effect as negligible it seems likely that he wrote the passage of text dealing with this subject. Like Lean in chapter 2 it seems that Parker likes to cite his own papers on the subject, saying:

"In a worldwide set of about 270 stations, Parker (2004, 2006) noted that warming trends in night minimum temperatures over the period 1950 to 2000 were not enhanced on calm nights, which would be the time most likely to be affected by urban warming. Thus, the global land warming trend discussed is very unlikely to be influenced significantly by increasing urbanisation (Parker, 2006)."³⁶

His 2004 paper was less than one page and so the 2006 paper looks like it was written in order that it could be cited in the IPCC's report of 2007.

One reviewer was not impressed with Parker, saying (in part)

"Parker (2005) is the only other support for the strong claims in this paragraph. Even though Parker is a Lead Author does not mean his work should be the only material cited. ... By all means cite it, but don't mislead readers by suggesting that it is the only study out there, and is so all-encompassing and infallible that counter-arguments should not even be mentioned. ... You cannot make sweeping, permanent claims based on one study which happens to be authored by a chapter LA. The whole point of the IPCC is to survey all the science, not just the bits you like."

Not surprisingly this comment was rejected, and if Parker did in fact write that section of the report then logically he would be the person who rejected it.

The claims made in Parker (2006) are very suspect because it fails to mention whether winds were warm or cool and fails to describe when the minimum temperatures occurred and if the wind had ceased by that time. His claims also seem at odds with observational data.

Figure 2-1 shows the 1981-2010 monthly average minimum and maximum temperatures for the observation station in the city of Melbourne, Australia, and at four observation stations in its suburbs. One of those four is a research station with open space, the others all current or former airports for various sizes of aircraft. The urban area of Melbourne is large but relatively flat and with very few high-rise buildings are found anywhere outside the city itself.

³⁶ Section 3.2.2.2 (page 244) of WGI contribution to IPCC 4AR

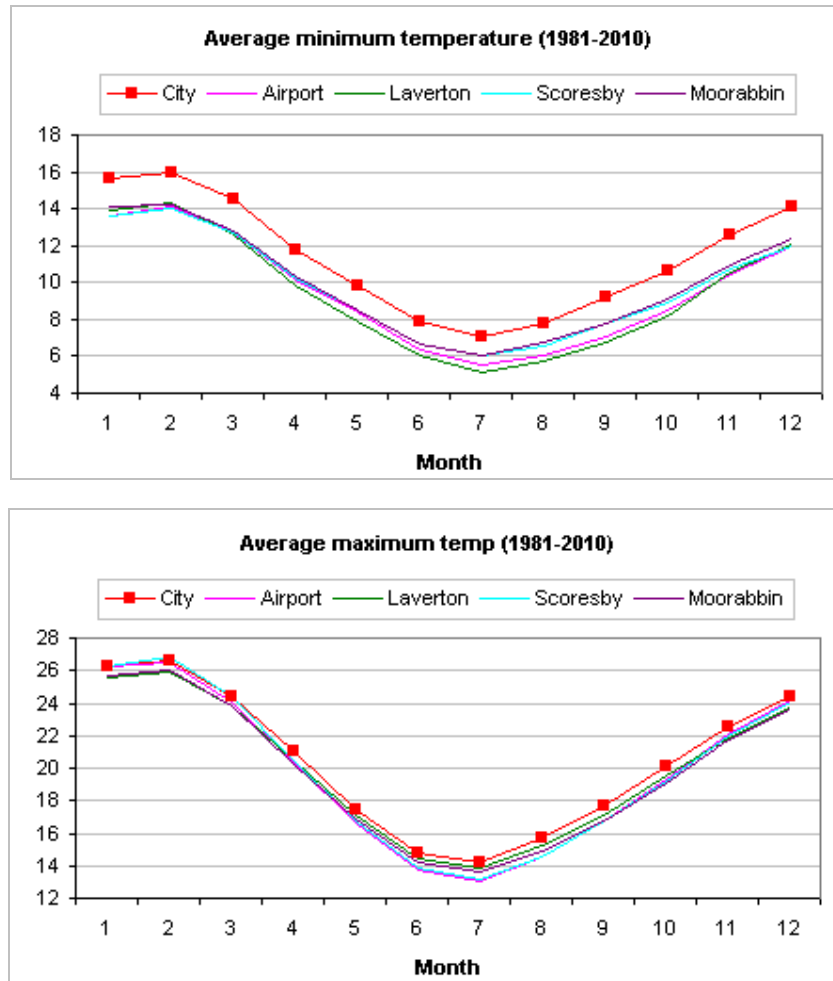


Figure 2-1 - Average monthly temperatures for observation stations in the city of Melbourne (Australia) and four outer suburban sites, showing a clear UHI effect in the city compared to the other stations.

It is clear from Figure 2-1 that in this case the city observation station reports higher temperatures than the suburban stations. This finding is in general supported by the Australian Bureau of Meteorology, which provides information to Urban Designers about this heat island effect³⁷ and at least one of its staff members³⁸ has written a paper on the subject, not only identifying the urban heat island effect in Australian cities and towns of various sizes but also providing a mathematical definition of the magnitude of the effect and citing other studies of UHI effects in Europe and the USA.

This is hardly likely to be isolated instance, so it looks like Parker's self-promotion was rather misplaced.

Further, Parker works at the UK's Hadley Centre for Climate Prediction and this organization and the Climatic Research Unit (CRU) jointly produce the temperature dataset used by the IPCC. If Parker's papers have been reflected in the data processing by which that dataset is created then it seems likely that the dataset is wrong.

³⁷ Australian Government Bureau of Meteorology (1997), "Urban Design", see http://www.bom.gov.au/info/leaflets/urban_design.pdf

³⁸ Torok, S et al (2001) "Urban heat island features of southeast Australian towns", Aust. Met. Mag. 50 (2001) 1-13, online at <http://reg.bom.gov.au/amoj/docs/2001/torok.pdf>

Another instance of an IPCC author promoting his or her own work is the infamous case of the "hockey stick" graph that appeared in the IPCC's Third Assessment Report in 2001. This name of this graph came from it showing a very steady and sustained rate of decrease in Northern hemisphere temperatures from 1000AD to 1850AD, followed by a sharp upward spike. The IPCC report featured this graph 7 times in various forms³⁹ and it was very widely reproduced by government and other agencies to try to convince the wider public to change its ways.

The graph was the work of Mann, Bradley and Hughes (MBH), the first of whom was a Lead Author of IPCC chapter 3 despite his new PhD and the hockey stick paper being his only claim to fame, and was, by my reckoning, the only paleoclimatologist among that chapter's authors, which would make him the likely author of that section of the chapter.

Among the "Climategate" files released from the UK's Climatic Research Unit (CRU) in November 2009 are some emails discussing this graph while the draft of the IPCC chapter was in development. According to the emails Mann recognised that other temperature reconstructions existed and that they did not agree with the "hockey stick". A CRU scientist, Keith Briffa, had developed a reconstruction that was problematic to Mann because it refuted the MBH graph, showing falling temperatures since 1960 according to tree ring data and indicated that there was nothing unusual about recent warming. Phil Jones of the CRU suggested that the IPCC chapter show two figures, one of the MBH graph alone and one with other temperature reconstructions, which is how things did appear, but while a graph of Briffa's reconstruction was included it mysteriously terminated in 1960 despite Briffa's reconstruction running to year 2000. Curiously the IPCC report made no mention of the difference in reconstructions. According to a reviewer of the second order draft of that chapter, when he requested that the Briffa reconstruction be shown in full and the disagreement between the graphs be discussed, the response, presumably from Mann, was that this would be "inappropriate"⁴⁰.

The original publication of the MBH graph piqued the interest of two Canadians - Steve McIntyre and Ross McKittrick (MM) - but their attempts to confirm the work of MBH were a battle against the obduracy of MBH. Finally, after the IPCC's report was published, MM were able to conclude that the work was seriously flawed and that the use of the same techniques on random data would result in similar "hockey stick" graphs.

This criticism by MM provoked two inquiries, the first under the direction of the National Academy of Science (NAS) and the second an independent review led by Dr Edward Wegman. The links between the NAS and the ICSU, a key driver of the establishment of the IPCC, were mentioned earlier in this document (see chapter 1) and some of the members of the review team had previously worked with MBH, the creators of the "hockey stick", so this review was hardly impartial. The review agreed with most of the findings of McIntyre and McKittrick but managed to put a positive emphasis on the "hockey stick" as if endorsing it, for example rather than lead with the statement that the first 60% of the graph was unreliable, the NAS report declared that the graph of the last 400 years was probably accurate.

The review by Wegman, an expert statistician, and similarly qualified colleagues was more scathing of the graph, the reluctance of MBH to provide information to those who wished to verify the graph, and of the poor integrity of the original peer-review that led to the paper's publication.

By the time of the IPCC's 4AR of 2007 the hockey stick was discredited and did not appear. There was no "errata" relating to the 2001 report, nor any apology for the graph's inclusion, which suggests that the IPCC believed that the graph serving its purpose was more important than its accuracy. Once again an author had manipulated part of the IPCC report and provided false or dubious support for its claims.

³⁹ Twice in the body of chapter 2, in the WG I Summary for Policymakers, in the Technical Summary, in the SPM for the Synthesis Report and twice in the Synthesis report itself

⁴⁰ "IPCC and the 'Trick'" online at <http://climateaudit.org/2009/12/10/ipcc-and-the-trick/>

IPCC authors writing a paper to be cited by the IPCC Assessment Report

The ultimate in blatant "write then cite" acts by the IPCC can be found in the Second Assessment Report in chapter eight, which attempts to blame human activity for rising temperatures. It is widely accepted that Ben Santer, a Coordinating Lead Author of this chapter, significantly modified the text after it had been reviewed. The full story is however more revealing of both the events and how the IPCC chairman of the time, Bert Bolin, saw the situation.

The IPCC's First Assessment Report did not get off to a good start despite it being based on the ICSU SCOPE 29 Report, which was largely written by IPCC chairman Bert Bolin. The crucial chapter was number 8, "Detection of the Greenhouse Effect in Observations". Despite two-thirds of this chapter's references having at least one co-author from among the chapter authors and despite citing the SCOPE 29 report, the Executive Summary to this chapter contains an admission of failure dressed up as an uncertainty -

"The fact that we are unable to reliably detect the predictive signals today does not mean that the greenhouse theory is wrong, or that it will not be a severe problem for mankind in the decades ahead."

This First Assessment Report was hastily prepared for the "Earth Summit" in Rio de Janeiro in 1992 and that conference, under the auspices of the United Nations General Assembly, led to the formation of the United Nations Framework Convention on Climate Change (UNFCCC), a body that immediately started claiming that human activity was having a significant impact on global climate.

As a consequence of the establishment of the UN FCCC the description of IPCC tasks was subsequently altered to:

"... shall concentrate its activities on the tasks allotted to it by the relevant WMO Executive Council and UNEP Governing Council resolutions and decisions as well as on actions in support of the UN Framework Convention on Climate Change process"⁴¹,

From a political angle this meant that the admission of uncertainty mentioned in the IPCC's First Assessment Report would no longer be acceptable and that the IPCC had to "find" the evidence to support the UN FCCC. The Second Assessment Report, published in 1995, tried to resolve that problem and it's fair to say that the IPCC's credibility and existence depended on that "evidence" being produced.

In June 1996 an opinion piece written by Frederick Seitz appeared in the Wall Street Journal and it⁴² started to lift the lid on what really happened. Seitz claimed that the final draft of the pivotal chapter, that which blames human activity for warming, had been altered after it had been approved by an international body of experts (in Madrid, October 1995) and that it therefore could not be accepted as part of the IPCC report.

"In my more than 60 years as a member of the American scientific community, including services as president of the National Academy of Sciences and the American Physical Society, I have never witnessed a more disturbing corruption of the peer-review process than the events that led to this IPCC report."

He especially noted:

⁴¹ IPCC document "Principles Governing IPCC Work", online at <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf>.

⁴² Frederick Seitz, "A Major Deception on Global Warming," Wall Street Journal, New York, June 12, 1996 <http://www.sepp.org/Archive/contro/ipcccont/Item05.htm>

"The following passages are examples of those included in the approved report but deleted from the supposedly peer-reviewed published version:

- 'None of the studies cited above has shown clear evidence that we can attribute the observed [climate] changes to the specific cause of increases in greenhouse gases.'
- 'No study to date has positively attributed all or part [of the climate change observed to date] to anthropogenic [man-made] causes.'
- 'Any claims of positive detection of significant climate change are likely to remain controversial until uncertainties in the total natural variability of the climate system are reduced.' "

He went on to express uncertainty as to who had made these alterations that were in direct contradiction of the IPCC's documented procedures.

Some have blamed Dr Benjamin Santer for these changes⁴³, among them Dr Fred Singer, who in a letter to the American Meteorological Society said⁴⁴

"Santer has always taken full responsibility for making the actual changes, although he has not been forthcoming in revealing who instructed him to make such revisions and who approved them after they were made. He has, however, told others privately that he was asked [prevailed upon?] to do so by IPCC co-chairman John Houghton. Nature (June 13) states that the changes were made to bring Chapter 8 into conformity with the IPCC Summary for Policymakers, a political document finalized by governmental delegations in Madrid in late November 1995."

As disturbing as Seitz and Singer are they only tell part of the story and it is Bert Bolin who sheds light on what actually happened and shows it to be even more worrying. Bolin discusses how the sentence "However, the balance of evidence suggests that there is a discernible human influence on global climate" was put into the report. He says of a discussion by chapter authors after the chapter had been approved (or in his terms "the written submissions to the session were supplemented during the final session"):

"One of the convening leading authors of Chapter 8 of the report (Ben Santer) opened the discussion by presenting new evidence that would justify a stronger statement regarding a partial attribution of the observed change of the global climate being due to human interference than had been proposed in the wording submitted in writing before the [final] meeting of the working group, and he was supported by the other convening lead author (Tom Wigley)." ⁴⁵

Bolin goes on to say:

"The chairman [of WG I], Sir John Houghton, pointed out that since the two convening lead authors considered that this modification was justified in the light of the additional literature that had been considered by them, a modification of the writing in the bulk report and the insertion of additional references were needed in order to ensure consistency. This was unanimously agreed by the working group. The modifications of the bulk report that were accordingly made after the meeting were agreed by the team of lead authors of the chapter as well as by the working group chairmen before final publication.

...

⁴³ For example Tim Ball, "The Scientists Involved in Deliberately Deceiving the World on Climate," Canada Free Press, November 30, 2009
<http://canadafreepress.com/index.php/article/17364>

⁴⁴ <http://www.sepp.org/Archive/controv/ipcccont/amsltr.htm>

⁴⁵ Bolin, B (2007) "A History of the Science and Politics of Climate Change", Cambridge University Press, 2007, (page 112, paperback edition)

"The summary for policymakers was approved and the technical summary and the bulk reports accepted and this was all brought to the IPCC plenary meeting in Rome in December for final acceptance. Nevertheless, a confrontation had occurred between the scientists who wished to put forward their latest findings as soon as possible and some of the delegates who emphasised more the need to safeguard the credibility of the assessment process. This issue resurfaced in the course of the following years."

Bolin later returns to this subject⁴⁶ and launches into a multi-page attack on Seitz. He attempts to defend the changes by claiming that the "bottom line" conclusions were the same as had been approved, that Seitz was acting for oil-producing countries and that the US State Department had said that it was essential that the chapter was not finalised "prior to completion of discussions at the IPCC working group I plenary, and that the chapter authors modify the text in an appropriate manner following discussions in Madrid." This claim by Bolin is farcical, as were his ad hominem attacks on Seitz and what amounts to a claim of "How would he know?" The IPCC procedures do not allow these subsequent ad hoc changes because it would make a mockery of the review and approval process.

At one point Bolin states in relation to the time of writing the report "[t]he arguments for a discernible climate change had become somewhat more convincing", but he notably omits any clarification as to whether this is a human-induced climate change and what precisely he means when he says "somewhat more convincing."

His attack on Seitz and defence of the changes is undermined further when one looks more closely at the source and credibility of the "new information" that appeared in the IPCC report. In the endnotes to his book⁴⁷ Bolin says firstly that the new information, presented by Santer, was in draft form and had been submitted to *Nature* for publication, Santer being its named author. (Note that it had only been submitted, and neither reviewed and accepted for publication nor published).

In his second endnote Bolin tries to defend the IPCC's reliance on that paper when he says:

"Santer and Wigley, the two lead authors of the IPCC chapter, were key authors of the *Nature* article and they were undoubtedly in the vanguard of this kind of analysis at the time".

Bolin is therefore admitting that the two IPCC Convening Lead Authors⁴⁸ of IPCC WG I chapter 8 were the key authors of a paper that they wished to cite in that chapter. That's bad enough, but it's not full story either.

The paper in question was a 5-page document⁴⁹ written by 13 authors, of whom 8 were also among the 34 authors of chapter 8. This situation looks very much like a panic to find material to support the arguments expressed in that chapter, and when it could not be found it was constructed in order that it could be cited.

The credibility of this new paper dissolves even further when we see that it cited 59 references of which 32 had at least one co-author among the 13 authors of the paper (and others may exist behind the "et al" used to replace long lists of authors). Also among the cited papers are 4 that are shown only as "submitted". Eight references are to IPCC documents and incredibly 3 of these are to the 1995 IPCC report itself. We have a situation then where IPCC authors have

⁴⁶ pages 127-133 Bolin (2007), paperback edition

⁴⁷ Notes 8.4 and 8.5, on page 256, Bolin (2007) paperback edition

⁴⁸ Later the author's title was changed to "Coordinating Lead Author"

⁴⁹ The paper in question is Santer, B.D.*, K.E. Taylor, T.M.L. Wigley*, R.J. Stouffer, S. Tett*, T.C. Johns*, P.D. Jones*, D.J. Karoly*, J.F.B. Mitchell*, A.H. Oort, J.E. Penner*, V. Ramaswamy, and M.D. Schwarzkopf (1996), A search for human influences on the thermal structure of the atmosphere, *Nature* 247, p332-336 [The * has been added to denote chapter 8 authors]

written a paper so that the report can cite it even while it is merely in a "submitted" state, and later they modify the submitted paper so that it cites the report in which it is cited.

Incredibly not only was this paper mentioned again in the IPCC's Third Assessment Report of 2001 but also several of its authors were selected as authors of this IPCC report. Perhaps it was a reward for shoring up the political credibility of the IPCC in 1995.

Bolin's support for this farce is understandable. He'd been saying for 30 years that human activity was having a big influence on temperatures and the IPCC report would have undermined him had it not been able to claim support for his belief.

Summary

This chapter has shown that the IPCC's system of writing its reports suffers from a host of flaws. The Coordinating Lead Authors and Lead Authors seem to dictate the general content of the report and will marginalise alternative views of contributing authors or provoke those contributing authors into resigning.

The IPCC authors, particularly the Lead Authors who are each responsible for only sections of a chapter, will expound their own views, cite their own papers and be dismissive of views that they don't agree with. And when all else fails but supporting evidence must be presented, IPCC authors will write their own scientific papers so that these papers can be cited in the report.

The IPCC claims that its writing process is open and transparent but in fact appears to endorse any self-interest shown by lead authors, who may well have been appointed on the understanding that they would promote a certain view. The IPCC also implies that hundreds, or even thousands of experts, approved each passage of text when in fact the text was written and approved by fewer than five authors, albeit subsequently approved by government representatives who may have had neither the inclination nor the means to demand substantial alterations.

Chapter 3 - Flawed and deceptive Review process

The IPCC blandly said that its 4AR of 2007 was peer-reviewed by 2500 experts, but this statement is loaded with false implications.

A lay-person might believe that that every word of it was examined and endorsed by that number of experts but that is not what occurred. Each chapter of the IPCC's Assessment Report undergoes two rounds of review, the first only by experts and the second by a mixture of experts and governments. The second draft of the Working group I contribution to the 4AR saw only 5 reviewers comment on all 11 chapters and at the other end 71 reviewers (23% of the total) commented on only 2 chapter and 143 reviewers (46%) on just one chapter. The number of reviewers making a single comment for an entire chapter ranged between 12.6% (1 in 8) and 32% (almost 1 in 3). And despite the professed concern of governments only 22 of them, plus the European Union as a whole, commented on any chapters in this second draft. The average number of reviewers for each chapter of the second draft was just 67 and the average number of governments was 10.5.

The IPCC's number of reviewers is a grand total of the reviewers for all three working groups and is oblivious to duplicated names (i.e. where the reviewer commented on chapters for more than one group). It certainly does not represent the true extent of review for each paragraph of the report, and therefore seems like a ploy to imply that review was far more intensive than actually occurred.

The IPCC's form of peer-review is not in agreement with that practiced by scientific journals. Under the system used by journals the authors are forced to modify their text in accordance with the statements of the reviewers but IPCC authors are not under a similar obligation.

Review comments are directed to Lead Authors who are only required to provide a written response. This basically leads to authors either taking into account positive suggestions or defending criticism of their statements and their omissions of what others regard as relevant information. The bases are loaded in favour of authors because reviewers are required to justify their comments but authors are not.

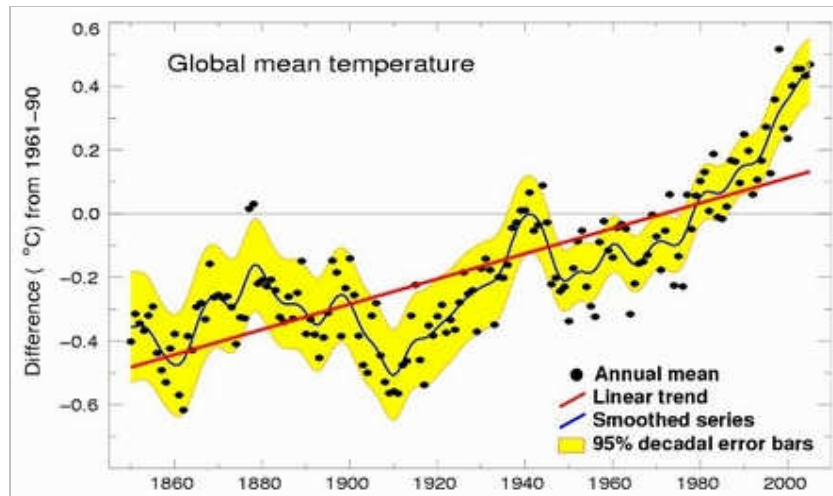
This is not a review process at all but merely a feedback system that solicits information for improving the expression of the views of Lead Authors and Coordinating Lead Authors.

Earlier we saw an example of a response, presumably from Lead Author Judith Lean, using her own unpublished paper to dismiss one reviewer's comment, saying that the evidence for a climate response to solar variability raises flags about current understanding of climate change that may undermine credibility of climate models "which are typically unable to reproduce the observed correlations", that numerous papers that report empirical associations between the sun and climate were not included in the FOD because of lack of space and that one reviewer's suggested reference to be cited was "not in line with the findings about solar forcing in the IPCC draft. Unfortunately there is no reason to consider that other IPCC authors did not respond to reviewers' comments in a similar fashion and by doing so dismiss relevant material.

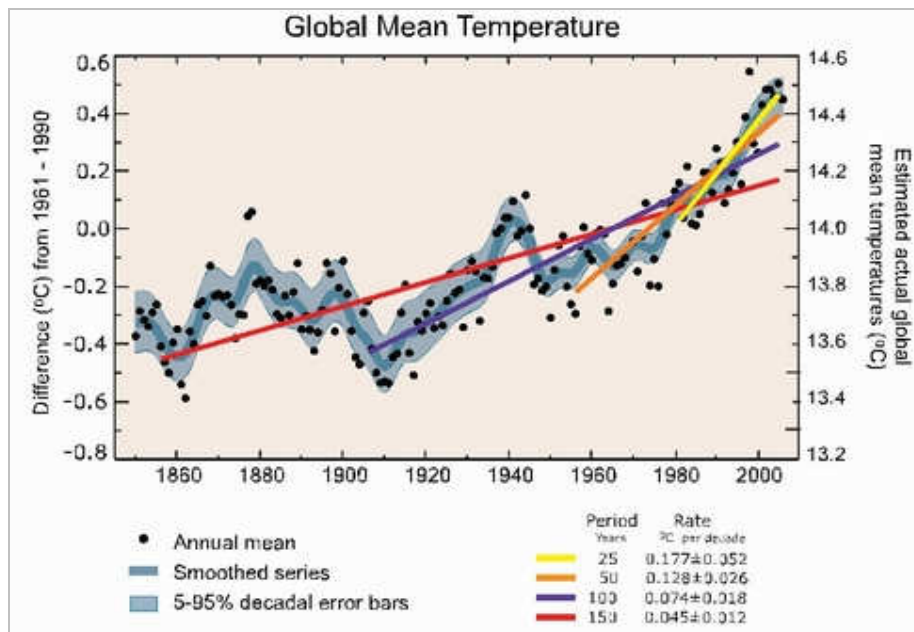
We also saw earlier how the pivotal chapter of the IPCC's Second Assessment Report was drastically altered, on the claims of a paper that several of that chapter's authors had cobbled together and just submitted to a journal, after the second review was complete.

In similar fashion the final draft of IPCC 4AR was modified after review. Reviewers were invited to comment on a document containing Figure 1 of FAQ3.1 showing a graph of HadCRUT3 near-surface average global temperatures with single linear trend line from 1850 to 2005. Just one reviewer of the 63 that commented on this SOD chapter took exception to this graph declaring, quite reasonably, that it was spurious because natural causes were known to be significant contributor in at least some years and that the trend line was "spurious". When the 4AR was finally published in early 2007 the same figured appeared (on page 253) but now with four trend lines, the above mentioned line plus 3 others all dating backwards from 2005, and respectively for 25 years, 50 years and 100 years (see Figure 3-1). It is entirely plausible that

reviewers would have objected to this graph that they had never been permitted to comment on.



(a) Figure as it appeared in the second draft for review



(b) Figure as it appeared in the final version

Figure 3-1 - IPCC 4AR FAQ 3.1, Figure 1 as it was (a) given to reviewers and (b) appeared in IPCC 4AR - trend lines have been added and when compared to annual mean temperature values, the decadal error band has mysteriously shrunk and is further diminished by choice of colour.

IPCC procedures do not specifically state that a report cannot be altered after a second review is complete other than in relation to points raised by that review. Worse yet, the 4AR the Working Group I Summary for Policymakers, a document approved line-by-line by government representatives, was published prior to the release of the full text and incredibly the full text was modified to agree with the summary, regardless of any views the reviewers may have held.

The role of a Review Editor is likewise farcical. The word "editor" is used for a purpose because the role of these people is not to impartially judge the merit of comment and responses but to "ensure that all substantive expert and government review comments are afforded appropriate consideration, advise lead authors on how to handle contentious/controversial issues ..."⁵⁰.

The only constraint on a Review Editor is that they "cannot serve as reviewers of those chapters of which they are Authors" (same reference as above). (I assume that the IPCC doesn't mean that these people can't simultaneously be reviewers and authors, why then are they called Authors when their title is Review Editor?)

In IPCC 4AR we find review editors who were authors of the corresponding chapters of previous IPCC reports (e.g. Karoly, WGI chapter 9) and we find review editors who are also authors of other chapters of the current report. It would be an illusion to think that these people are impartial when their appointments may well be for the opposite reason, to help shore up the IPCC's beliefs against attack from any reviewers.

The other role of review editors is "... ensure genuine controversies are reflected adequately in the text of the Report" (same reference as above) and this point is alluded to at three other points in the same document.

"It is important that Reports describe different (possibly controversial) scientific, technical, and socio-economic views on a subject, particularly if they are relevant to the policy debate. [section 4.2.4]

"Lead Authors are required to record in the Report views which cannot be reconciled with a consensus view but which are nonetheless scientifically or technically valid. [section 1, Annex 1]

"Although responsibility for the final text remains with the Lead Authors, Review Editors will need to ensure that where significant differences of opinion on scientific issues remain, such differences are described in an annex to the Report." [section 5, Annex 1]

These statements are inconsistent regarding where this information should appear and, given how these contrary views appear in the text, it appears that the Review Editors encourage the Lead Authors to dismiss these views rather than record them as procedures demand.

Summary

The IPCC's review process is a sham. It exists only to solicit any comments that may enhance the expressed view of the authors and regardless of any reviewers' comments those authors decide for themselves the material to appear in each draft.

⁵⁰ From Annex 1 to Appendix A of "Principles Governing IPCC Work"

Chapter 4 - Deceptions, concealment, misinformation and distortions

Introduction

We have already seen that the IPCC 4AR is very much the product of individual authors expressing the opinion on which the IPCC was established and doing whatever was required to argue that case. As well as promoting one's own work, ignoring inconvenient material that would bring into question the IPCC's claim and citing inaccurate models, IPCC authors also conceal, minimise, obfuscate, misinform and distort, and one can reasonably assume that this is to advance the IPCC's claim about human activity having a large influence on temperature.

In this section we take a look at some examples from IPCC 4AR.

Pretence that opinions equate to probabilities

The IPCC is fond of declaring that certain events are "likely", "very likely", "extremely likely" and so on, and one must read carefully to see through this deception.

The IPCC's "Guidance Notes for Lead Authors of the IPCC Fourth Assessment Report on Addressing Uncertainties" describes how to select the appropriate expression of probability and it lists the table below

Terminology	Likelihood of the occurrence/ outcome
Virtually certain	> 99% probability of occurrence
Very likely	> 90% probability
Likely	> 66% probability
About as likely as not	33 to 66% probability
Unlikely	< 33% probability
Very unlikely	< 10% probability
Exceptionally unlikely	< 1% probability

The same document tells how to select from these ranges of probability -

"Likelihood may be based on quantitative analysis or an elicitation of expert views."

The IPCC's key claim about a human influence on climate, as stated in 4AR chapter 9, seems to rest entirely on the "elicitation of expert views", and more precisely on the views of climate modellers who work with the imperfect models and most of whom are in a network of people who have worked together. The word "unlikely" appears 22 times in WG I chapter 9 and the word "likely" 132 times, but I cannot find one instance where these statements are backed by credible mathematical calculation of probabilities.

The blatant chicanery of the IPCC is evident from the WG I Summary for Policymakers⁵¹ in which we find:

A major advance of this assessment of climate change projections compared with the TAR is the large number of simulations available from a broader range of models. Taken together with additional information from observations, these provide a quantitative basis for estimating likelihoods for many aspects of future climate change.

Only the gullible would believe that a larger number of model runs of inevitably inaccurate models would provide a better basis for the calculation of accurate probabilities of future events. The IPCC clearly doesn't believe it either because it keeps referring to the "mean output of models" or a "consensus of models", neither of which should be necessary if the models were as accurate as the IPCC pretends.

⁵¹ IPCC 4AR WG I SPM, page 12

Minimal information about the effect of increased carbon dioxide

It is widely recognised among climate scientists that according to theory and the physical properties of carbon dioxide, an increase in atmospheric carbon dioxide should cause some warming but it is much disputed how much warming that should be in the free atmosphere (c.f. in a sealed vessel in a laboratory). It is also recognised that as carbon dioxide increases, the amount warming per unit (e.g. 10 ppm) will reduce.

This diminishing warming is crucially important but the IPCC 4AR failed to mention this until after the second round of review of chapter 2 and probably only because one reviewer of chapter 2 said:

"This chapter discusses rates of change of CO₂ in the atmosphere, and changes in radiative forcing, but nowhere does it state that the forcing is approximately logarithmic in the atmospheric concentration of CO₂ (although this information is contained in the TAR, which is referenced). This seems to me to be a basic bit of science which must be communicated to the reader before he or she can relate changes in CO₂ concentration (as shown e.g. in fig 2.3) and changes in forcing (as shown in fig 2.4)."

The terse response was "Accepted. Added to section 2.3".

Sure enough it does appear in section 2.3, as a comment in parentheses in a 19 line paragraph, the third last paragraph of section 2.3.1., which is part of the 17 pages of section 2.3, buried among the 106 pages of chapter 2. As if it is of little concern the passage of text says:

"(The formula used for the CO₂ RF calculation in this chapter is the IPCC (1990) expression as revised in the TAR. Note that for CO₂, RF increases logarithmically with mixing ratio.)⁵²"

This is the only comment on this relationship in the entire Working Group I contribution to the IPCC. There's no other mention of the logarithmic relationship in the rest of that chapter, nor it would seem in the entire WGI contribution. In chapter 8, "Climate Models and their Evaluation" we are told that another radiative atmospheric gas, water vapour, absorbs and emits radiation that varies according to the logarithm of its concentration, but no mention that the action of carbon dioxide varies the same way.

Given the relative obscurity and vagueness it seems reasonable to believe that the IPCC was embarrassed to present this information. Perhaps it was fearful that readers might decide that an increase in carbon dioxide was of no great concern because any warming caused by a large increase in carbon dioxide would not be greatly different to the warming caused by a small increase. This would of course undermine the tone of alarmism that the IPCC projects and cast doubt on its temperature projections that appear to rise in direct relationship rather than logarithmically with increasing carbon dioxide.

Deceptive Graphs

The IPCC's 4AR contains numerous temperature graphs in various forms but many seem to obfuscate or deceive rather than clarify. The climatological convention is to use anomalies from the mean values across 1961-1990 but the 4AR shows a remarkable variety of base periods and collations of data, making it difficult to compare those graphs (see Table 7-1).

⁵² RF as used here means "radiative forcing"

Chapter	Format of temperature graphs
1	Fig 1.1 uses 1961-1990 base period and shows decadal variations using a 13-point filter. Figure 1.3 uses 1961-1990 for one of several graph line and the other lines are adjusted in order that the last 30 years of all graphs match (which means that they might not use 1961-1990).
3	Period 1961-90 is used consistently but with occasional additions of "decadal variation"
9	Fig 9.4 uses 1901-1950 base period but Fig in FAQ 92. uses 1951-90 decadal averages
10	Temperature projections are given relative to the mean value across 1980-99
11	Decadal average anomalies from mean values across 1901-1950

Table 7-1 - Variety of base periods used in IPCC 4AR WG I when discussing temperature anomalies. The inconsistency makes comparisons difficult.

In many cases the 4AR hides behind decadal averages and trends, which suggests a blatant attempt to avoid giving the reader a clear impression of the variability of temperatures and perhaps observing that temperature patterns are not consistent with a relatively steady increase in atmospheric carbon dioxide.

Also on temperatures, in several chapters the 4AR comments on the warming influence of El Niño events but seems very reluctant to mention that La Nina events cause cooling. Further on this subject, the 4AR gives the illusion that the El Niño-Southern Oscillation (ENSO) has only three states - El Niño, neutral and La Nina - and somehow steps abruptly from one to another. In fact the ENSO is a continuous range of states and a situation that falls just short of the arbitrary threshold at which an El Niño is declared has an influence not substantially different to a situation that just crosses that threshold, and ditto for La Nina conditions at the other end of the scale.

A missing but important temperature graph

The IPCC's Third and Fourth Assessment Reports have temperature graphs that date back hundreds of thousands of years but there has been no attempt to put current temperatures into the context of the last 10 to 15 thousand years.

Temperature data from a single location, regardless of how it is measured or whether it is derived from proxies, will only apply to the microclimate of the surrounding environment. We should be cautious when applying such data, perhaps from tree rings, to a wider region or a hemisphere but maybe it gives hints about conditions across a larger region.

Temperatures derived from GISP⁵³ ice cores are shown in Figure 7-1. It indicates that in Greenland at least the temperatures fell from about 400AD to 800AD, rose for about 250 years then slipped downwards. The 650-year cool period, from 1200AD to 1850AD, was the third coldest in over 10,000 years and was the longest period of the four coldest. For most of the time back to about 8500BC Greenland's temperatures were more than 1 degree above the 1850 levels.

⁵³ GISP = Greenland Ice Sheet Project

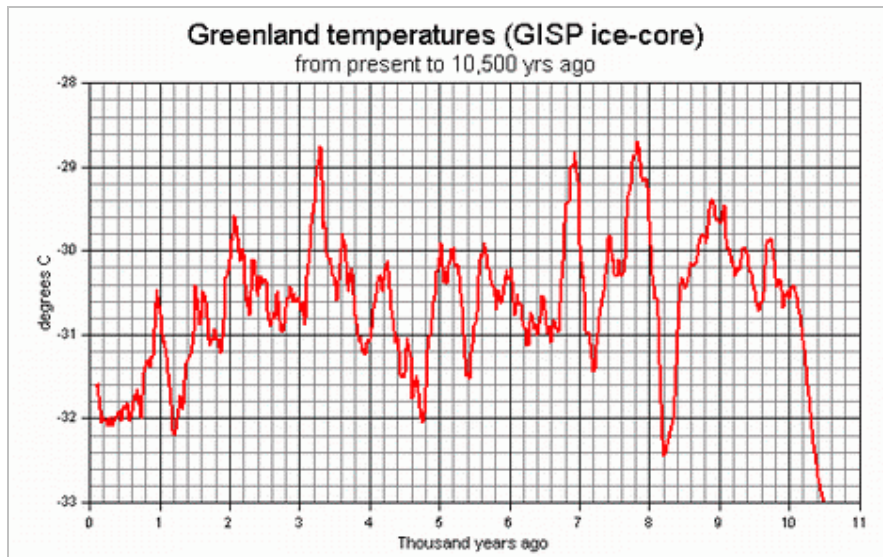


Figure 7-1 Temperatures for the last 11,000 years according to Greenland ice cores

An alternative source of data on Greenland temperatures is Vinther et al (2009)⁵⁴. It uses GRIP data rather than GISP data and according to this source the smoothed temperature data⁵⁵ suggests that the period from 70 to 330 years ago was the coldest in 10,600 years.

Both of these sources indicate that the temperature data since 1850, on which the IPCC relies, starts from what was probably almost the coldest period in over 10,000 years. Put into this context any warming over the last 150 years is not unusual and that warmer temperatures are actually the norm.

The IPCC 4AR has some temperature graphs dating back hundreds of thousands of years but none that show the last ten thousand years in any detail. Perhaps the disclosure of this information would have undermined its agenda of blaming human activity and been a serious inconvenience when trying to scare the public and national governments.

Inconsistency and dubious attribution (2003 European heatwave)

The IPCC 4AR is remarkably inconsistent in its discussion of the European heatwave of 2003 and its causes, and despite the meteorological description being perfectly clear, the IPCC tries very hard to blame human activity.

The period of higher than normal temperatures struck across much of Western Europe in late July and early August 2003. It brought abnormally high temperatures, in one region more than 10°C above average, to Italy, Switzerland and France in particular. Almost 15,000 people died in France during this time and their deaths were quickly blamed on the temperature but subsequently attributed largely to the absence of supporting services during the French holiday period, after all temperatures above 40°C are not unusual in many other countries.

From IPCC 4AR Working Group I we learn:

⁵⁴ Vinther, B.M., S.L. Buchardt, H.B. Clausen, D. Dahl-Jensen, S.J. Johnsen, D.A. Fisher, R.M. Koerner, D. Raynaud, V. Lipenkov, K.K. Andersen, T. Blunier, S.O. Rasmussen, J.P. Steffensen, and A.M. Svensson (2009) Holocene thinning of the Greenland ice sheet *Nature*, 461, 385-388, 2009, doi:10.1038/nature08355.

⁵⁵ See http://www.iceandclimate.nbi.ku.dk/data/Temperature_Reconstruction.pdf/

"The 2003 heat wave was associated with a very robust and persistent blocking high-pressure system that may be a manifestation of an exceptional northward extension of the Hadley Cell (Black et al., 2004; Fink et al., 2004). ... An exacerbating factor for the temperature extremes was the lack of precipitation in many parts of western and central Europe, leading to much-reduced soil moisture and surface evaporation and evapotranspiration, and thus to a strong positive feedback effect (Beniston and Diaz, 2004)."⁵⁶

Fink et al (2004) did not in fact mention Hadley Cell Circulation but agreed with the findings of Beniston and Diaz (2004). Fink et al says, of the warm period 22 July to 4 August 2003,

"... geopotential heights rose over central Europe during the latter period, and that the build-up of a surface high pressure zone stretching from the Azores to the Norwegian Sea completely inhibited the intrusion of low-level cooler air from the Atlantic and North Sea into central Europe."⁵⁷

The cause of the heatwave seems perfectly clear - a near-stationary pressure cell pulling warm air into western Europe, combined with very dry surface conditions brought on by a drought - and it seems entirely natural. But later, in the Executive Summary to chapter 9⁵⁸, this meteorological phenomena was undermined

"An anthropogenic influence has been detected in some of these indices, and there is evidence that anthropogenic forcing may have substantially increased the risk of extremely warm summer conditions regionally, such as the 2003 European heat wave."

(Actually there is no evidence *per se*, merely the output of a climate model.)

and later in an FAQ to that chapter

"... several factors contributed to the extremely hot European summer of 2003, including a persistent high-pressure system that was associated with clear skies and dry soil, which left more solar energy available to heat the land because less energy was consumed to evaporate moisture from the soil."⁵⁹

This FAQ goes on to say that one document - in fact a Letter to *Nature* - said that a climate model was run using only natural forces and a second time including a human influence, the second run "... produced a simulation of the evolution of European climate that was much closer to that which had occurred".

One reviewer of the first draft of this chapter said:

"The reference to the European heat wave ('such as...the unprecedented 2003 European heat wave') is gratuitous. First, 'unprecedented' since when? Since ever? Was it worse than the heat wave of 1214? Of course you might respond by saying that we don't know if there was a European heat wave in 1214, but that's exactly the point: no one knows if 2003 was 'unprecedented.' In the past the IPCC has been quick to dismiss anomalous individual events and data series by saying the focus must be on "climate"--as in long term averages. Yet here you have an anomalous event that cannot be evaluated for its rarity without knowing something about the tails of distributions when there is too little data to reliably characterize

⁵⁶ Box 3.6, IPCC 4AR WGI Chapter 3 "Observations: Surface and Atmospheric Climate Change"

⁵⁷ Fink, A.H., T. Brücher, A. Krüger, G.C. Leckebusch, J.G. Pinto and U. Ulbrich, 2004: The 2003 European summer heatwaves and drought: synoptic diagnosis and impacts. *Weather*, 59, 209-216. http://www.meteo.uni-koeln.de/content/downloads/fbklpu_weather_artikel2004_online.pdf

⁵⁸ IPCC 4AR WGI chapter 9 "Understanding and Attributing Climate Change"

⁵⁹ Frequently Asked Questions 9.1, chapter 9, IPCC 4AR WGI contribution

those tails. Also, if you are going to discuss anomalous 'warm' events, why not also discuss anomalous 'cold' events? Have there been no unusual cold snaps anywhere in the world? Or would it be 'off-message' to bring those up? Finally, the European heat wave led to a staggering number of deaths in France, but these can be attributed in large measure to the failure of public authorities to protect vulnerable citizens, and may specifically have been exacerbated by the fact that the heat wave coincided with so many civil servant vacations. Other places in the world experience the same summertime heat without tens of thousands of people dying. References to the European heat wave might allow the IPCC to use a body count as a grotesque way to draw attention to its report, but don't pretend that it is scientific writing."

This reviewer is right on the mark but failed to mention that the single paper in question, Stott et al (2004)⁶⁰, bases its claims solely on estimated probabilities derived from models, which we've already seen are flawed, and on the fallacious, if not mendacious, assumption that because the output of a model that included a human influence was closer to the observed data than a "natural forces only" model, human activity should be blamed. This is another instance of blaming factors that can be modelled and ignoring those forces that are modelled badly or perhaps not at all.

It should also be worrying that this single cited reference was written by a Lead Author and two contributing authors of the chapter in which it is mentioned, and if it was peer-reviewed that was likely to have been done by other authors of this chapter or other climate modellers.

But the inconsistencies do not stop here. In the Working Group II contribution, chapter 8 tells us:

"Since the observed higher frequency of heatwaves is likely to have occurred due to human influence on the climate system (Hegerl et al., 2007), the excess deaths of the 2003 heatwave in Europe are likely to be linked to climate change."⁶¹

The cited document in the above, Hegerl et al (2007) is none other than chapter 9 of the WG I contribution and its fanciful claim based on one paper, and this despite clear knowledge that heat waves are caused by stationary or near-stationary pressure cells.

Later in Working Group II, chapter 12 says:

"Average summer (June to August) temperatures were far above the long-term mean by up to five standard deviations (Figure 12.4), implying that this was an extremely unlikely event under current climatic conditions (Schär and Jendritzky, 2004). However, it is consistent with a combined increase in mean temperature and temperature variability (Meehl and Tebaldi, 2004; Pal et al., 2004; Schär et al., 2004) (Figure 12.4). As such, the 2003 heatwave resembles simulations by regional climate models of summer temperatures in the latter part of the 21st century under the A2 scenario (Beniston, 2004). Anthropogenic warming may therefore already have increased the risk of heatwaves such as the one experienced in 2003 (Stott et al., 2004)."⁶²

This statement is again not based on science but on assumptions, estimates and modelling when WG I chapter 3 has told us exactly what happened. Working Group II is cherry-picking its information from the Working Group I contribution and focussing only on the very dubious claims of a single paper cited in WG I chapter 9. The statement "is consistent with" is IPCC-speak for "correlates with", which of course is no proof of causality. This is not balanced and honest science but simply advocacy for a certain line of argument.

⁶⁰ Stott, P.A., D.A. Stone, and M.R. Allen, 2004: Human contribution to the European heatwave of 2003. *Nature*, 432, 610–614.

⁶¹ Box 8.1, chapter 8, IPCC 4AR, WG II contribution

⁶² Section 12.1, chapter 12, IPCC 4AR WG II contribution

Even the usually rather alarmist co-sponsor of the IPCC, the UNEP, accepts that the 2003 heat wave was natural, saying in an undated bulletin⁶³

This extreme weather was caused by an anti-cyclone firmly anchored over the western European land mass holding back the rain-bearing depressions that usually enter the continent from the Atlantic ocean. This situation was exceptional in the extended length of time (over 20 days) during which it conveyed very hot dry air up from south of the Mediterranean.

If the UNEP can get it correct then why can't the IPCC not only get the information correct but also be consistent?

Summary

The IPCC 4AR was not as impartial as some would like to claim but was manipulated to support a certain agenda. Information was distorted, minimised and omitted, and the reasonable conclusion is that this was done to support a very specific agenda. The IPCC's actions in this area are simply deplorable.

⁶³ http://www.grid.unep.ch/product/publication/download/ew_heat_wave.en.pdf

Chapter 5 - Flawed Temperature data

The IPCC undertakes just two primary actions, first it summarises the current state of climate science and second it engages researchers in climate modelling exercises. Both actions use what is supposedly high-quality temperature data, the first action citing it as evidence of climate variation and the second as a standard against which models are "calibrated" prior to using them to predict future climate.

The first action is essentially a report but "calibration" involves tweaking the numerous parameters in the climate models until the output of the models approximates the observed temperature. (The IPCC likes to claim or imply that an accurate match between the models and observed temperature is evidence that models are accurate but that is nonsense because many "correct" results could be obtained by varying the weightings of the many parameters and factors. For example, if we wanted to find a set of 3 numbers between 1 and 99 that totalled to 100 there are 833 correct answers, and over twice that number if the order of the 3 numbers is important.)

The IPCC uses temperature data supplied by the UK's Hadley Centre for Climate Prediction and the Climatic Research Unit at the University of East Anglia. The CRUTEM3 dataset is used for temperatures over land, HadSST2 for sea temperatures and HadCRUT3 for combined land and sea (i.e. global) temperatures.

In work for a forthcoming document I have analysed the HadCRUT3 temperature dataset and identified numerous problems with it. Most, if not all, of these problems will be present in the data used by the IPCC, or at least assumptions will have been made in order to try to minimise or remove them.

Before looking specifically at problems with the HadCRUT3 data there are some general issues with temperature data that warrant consideration.

As a general problem, all datasets that provide temperature data as average values - e.g. monthly or annual - provide no clear picture as to whether abnormal averages were due to just a few days of very atypical temperatures (e.g. a heat wave) or whether the data was slightly atypical across the entire period. A few days of atypical temperatures can skew a monthly average and a few months of atypical monthly average temperatures can skew an annual average.

Another problem is that the mean temperature across a month is calculated as the average of the mean daily minimum temperatures and the mean daily maximum temperatures rather than some time-based average over 24 hours. Both the daily minimum and maximum temperatures are very susceptible to short-term (e.g. 1 or 2 hour) variations in cloud cover at key times of the day, typically around sunrise for minimum temperature and mid afternoon for maximum temperature. The use of minimum and maximum values to determine the mean values assumes that the daily cycle of solar radiation is the only driver of temperature and that other forces such as cloud cover, wind and surface moisture are either homogenous over 24 hours and unvarying over years or decades or that a variation in one direction in one location is offset by a variation the opposite way in another location.

The IPCC is happy to cite carbon dioxide data obtained via monitoring that selectively excludes intermittent fluctuations due to natural causes or nearby human activity, but it cites temperature data that makes no attempt to similarly exclude data variations caused by short-term "weather" events.

Some background information about the HadCRUT3 data will be useful before we consider its problem issues.

The data is based on temperature anomalies, which is the difference between the temperature in any given month and the long-term average for that month, where ideally that long-term average is across the 30 years 1961-1990. The Earth's surface is divided into grid cells, each

of 5° latitude by 5° longitude and each datum point is for that grid cell in that month. Where a grid cell contains observation stations the datum point for the grid cell is notionally the average temperature anomaly for all observations stations within that grid cell and over the oceans sea surface temperatures are used rather than data from observation stations. The global average temperature is determined by calculating the average in each hemisphere, after first weighting the data for each grid cell according to the cosine of the latitude of the centre point, then calculating the global average as the average of the two hemispheric averages.

The following problem areas have been identified in the HadCRUT3 temperature dataset, and it is probably not the only temperature dataset to suffer from these failings.

1. The data is obtained from different mediums, with different thermal properties and different forces, using methods that have varied over time.

Land temperatures are relatively instant but with some influence of heat absorption and release from the physical environment. Sea temperatures are influenced by currents, upwelling and the state of the sea surface because a rough sea will expose more water surface to the atmosphere as well as cause greater mixing of surface and deeper water.

Land-based observation stations vary in height, in instrumentation (manual, automatic) and each measures only the temperature of the local environment, but that environment changes over time due to natural caused and human actions.

The methods of obtaining sea surface temperatures have changed over time - canvas buckets, wooden buckets, sensors mounted on hulls and since about 1998 an increasing use of fixed and drifting buoys. The depth of water at which the temperature was sampled has varied from about 6 metres with large ships virtually right up to the sea surface.

2. Data precision is not consistent with observational precision.

The data is presented with a precision of three decimal places (i.e. to thousandths of a degree) for land observations and two decimal places for sea, but observations are at an accuracy of one tenth of a degree at best.

It is fundamental of processing of unrelated data (i.e. not multiple measurements of the same situation) that it cannot produce data at a greater accuracy than the input data.

3. The global coverage is variable both in total number of grid cells and in their location, and this varies by calendar month even within the same year.

The HadCRUT3 data shows a great variation in its coverage of the Earth's surface (see Figure 5-1). For example: Sea surface temperature data varied as shipping routes changed over time or as navy shipping altered its patterns of movement. The coverage of land-based data varied with what is generally European expansion via trade or settlement and many, but not all, of those locations now have high population density or significant changes to land use. Coverage of the Antarctic is very sparse until about 1982, which is problematic because insufficient data is available to determine long-term averages.

Of particular import is the shortage of continuous good quality data for much of the tropics, especially the Pacific Ocean, the Amazon Basin and central Africa. Fifty percent of the Earth's surface lies between 30°N and 30°S so each grid cell in this region carries far more weight than mid or high latitude grid cells.

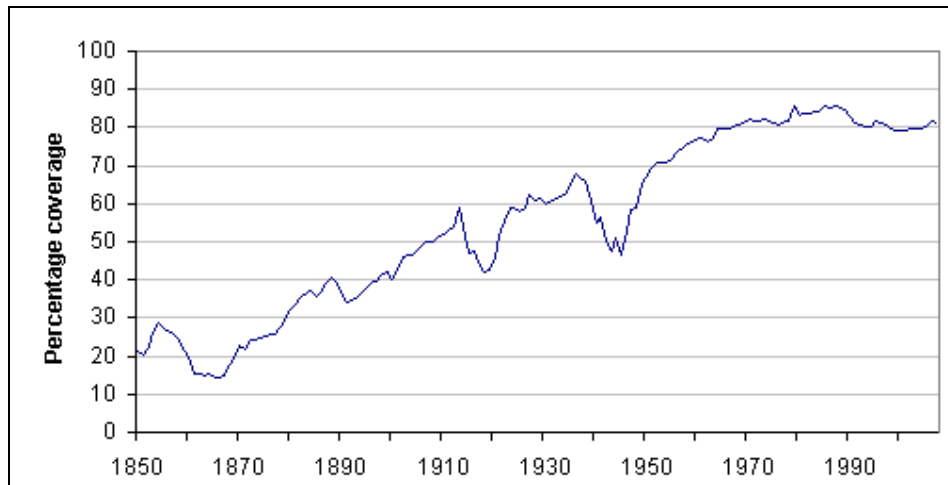


Figure 5-1 Coverage of the Earth's surface by HadCRUT3 data. The drop in coverage during the Second World War is largely due to a reduction in sea surface temperature data.

4. Referring to just "land" and "sea" data is an unhelpful generalisation.

The providers of this data talk in terms of land and sea temperatures but grid cells may cover an area completely of land (21.7% of total grid cells, 18.1% of the Earth's surface), completely of sea (50.6%, 53.9%) and "coastal" (27.7%, 28%).

Having identified the different cell types a comparison between the HadCRUT3 dataset and the HadSST2 data reveals that the data for each coastal grid cell varies over time between data from observation stations, sea surface temperature data or some combination of the two, and that over time the proportions of data from the two sources have varied (see Figure 5-2). This also means that when using just the land/sea terminology any given coastal grid cell might be included in "land" at some times and "sea" at others.

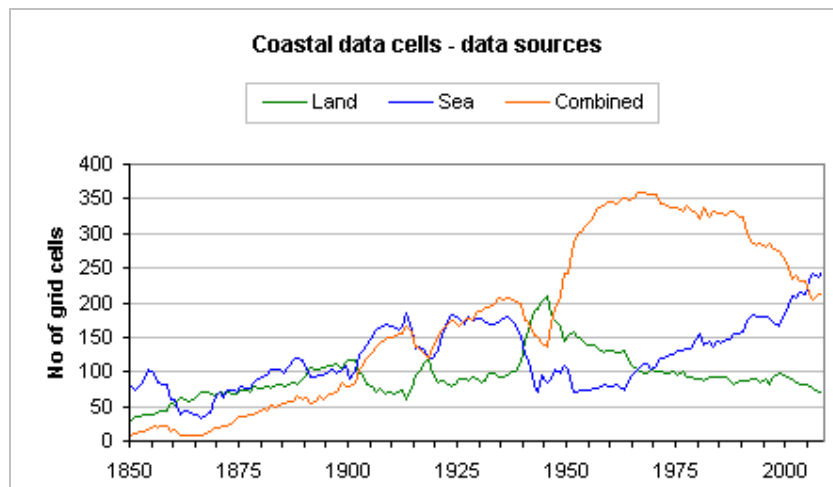


Figure 5-2. The number of "coastal" grid cells that contain data and their sources.

5. Growing recent discrepancy between data from Land and Sea grid cells.

Ignoring the coastal grid cells, the average global temperatures derived from land grid cells were very similar to those for sea grid cells for many years but in about 1985 started increasing

faster and are now about 0.6°C higher (see Figure 5 -3). This is odd given that average global temperatures started rising in 1977 and were reasonably comparable for the next 7 years.

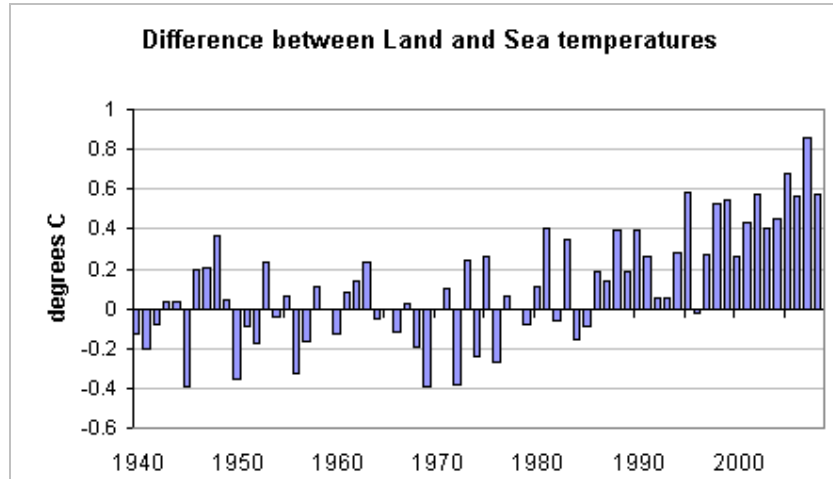


Figure 5-3 Variation in annual average temperatures according to Land and Sea grid cells (Coastal grid cells omitted).

6. Variation in the number of observation stations

The total number of observation stations supplying data since 1850 is 4138, of which 38.2% were in the 50 states of the USA, but not all of these have supplied data simultaneously and consistently.

The number of active observation stations has varied greatly (see Figure 5-4), peaking at 3816 in 1966 but falling by 722 to 2722 across 1989-93 (incl.), falling again to 2553 in 1996 and 1412 in 1997. The apparent lapse from 931 in 2001 to zero in subsequent years is probably due to poor data management at the CRU (which raises other questions about the data). This loss of stations was also shown in item 4 above where the number coastal cells using land data or combined land & sea data has been falling.

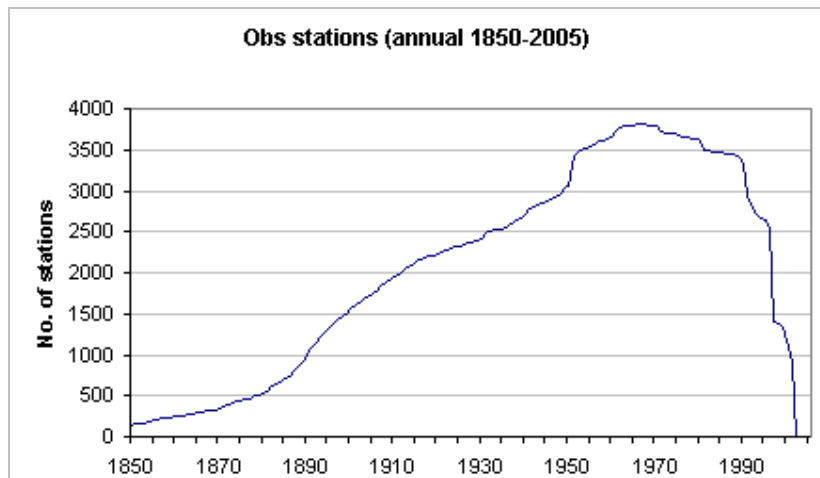


Figure 5-4 No. of active observation stations derived from a CRU data file.

7. The number of observations stations for any given grid cell will vary over the long-term and vary from month to month.

The HadCRUT3 data is created from very variable observation stations. At times it is nothing more than an appended sequence of data from different sets of sources and different numbers of observation stations. Any variation in the number of stations in a grid cell could influence the HadCRUT3 temperature for that grid cell.

8. The observation station identification numbers used in the HadCRUT3 are not always unique.

A total of 153 observation stations in the USA have only 43 different station ID numbers between them, with one ID used for as many as 6 stations

It's not clear whether these numbers are used to associate station details in the two data files (one of location information, the other of long-term average and data availability), but if this is not used to link the contents of the two files then why include it? If this identification number is used then there is a high potential for accessing the wrong data.

9. Observation stations start operation, cease operation, are relocated, and are subject to changes in the local physical environment.

The last mentioned changes includes urban heat island effects, this including changes to wind patterns, thermal properties of manmade structures, the rapid runoff of any surface moisture and the local generation of heat

10. The long-term monthly average temperatures for each observation station are not always determined from 30 years of data from 1961 to 1990 inclusive.

The monthly averages may be calculated from as few as 16 years from anywhere across the period 1961-90, or maybe even just inferred from other locations.

According to Brohan et al (2005)⁶⁴,

"The station normals (monthly averages over the normal period 1961–90) are generated from station data for this period where possible. Where there are insufficient station data to achieve this for the period, normals were derived from WMO values [...] or inferred from surrounding station values [...]"

whereas the CRU web page for this temperature data says on this subject...

"Because many stations do not have complete records for the 1961-90 period several methods have been developed to estimate 1961-90 averages from neighbouring records or using other sources of data."

This approach is inconsistent and it could easily be biased towards 1977-1990, during which time temperatures are claimed to have risen, or 1961-1976, which is prior to that warming. The WMO estimates of temperature could be from any period at all and perhaps not even from a continuous period. The period over which the long-term average temperatures are calculated for observation stations is very inconsistent.

11. The long-term monthly average sea surface temperatures are derived by a complex method and we have no evidence that these were accurate.

Rayner et al (2006)⁶⁵ says of the calculation

⁶⁴ Brohan, P., J.J. Kennedy, I. Harris, S.F.B. Tett and P.D. Jones, (2006) Uncertainty estimates in regional and global observed temperature changes: a new dataset from 1850. *J. Geophysical Research* **111**, D12106,

The new climatology was created by iterative refinement of the Global Sea Ice and Sea Surface Temperature dataset (GISST2.0) 1961–90 climatology (Parker et al. 1995b), used for MOHSST (Parker et al. 1995a) and the first HadSST (HadSST1; Jones et al. 2001):

1) 1° area-average quality-controlled SST anomalies for each pseudomonth between 1961 and 1990 were added to the initial calendar monthly background field (from GISST2.0). These were then augmented at polar latitudes with monthly varying SST from grid boxes partially covered by sea ice in HadSST1 (Rayner et al. 2003).

2) These fields were then interpolated using the Laplacian (Reynolds 1988) of the background field to create globally complete fields.

3) The resultant fields were averaged separately for each calendar month.

The new 1961–90 averages were then used as background fields in an iteration of steps 2 and 3. In all, six iterations were needed to ensure convergence to a stable result.

It appears that these long-term averages were calculated from anomalies (which by definition are themselves variations from long-term averages) augmented with other data and then interpolated and smoothed until a stable result was obtained. There is no evidence that these long-term averages are accurate, but merely a claim based on a statistical technique for smoothing the data.

12. For some grid cells in some months, the data across the period of normalisation does not sum to zero (even with allowance made for precision).

Sea grid cells are not prone to inconsistencies with the operation of observation stations and yet the data for many sea grid cells fail to sum to zero for any given calendar month across the period 1961-90. According to the sea surface data in HadSST2, the sum of the average annual anomalies across 1961-1990 for the Northern Hemisphere oceans is -0.75C and -1.5C for the Southern Hemisphere, when they should both sum to 0. Sea surface temperature data in HadCRUT3 is therefore inaccurate across this period.

The CRU web page says..."*However, the IPCC optimally averaged global and hemispheric time series (see later web address) are constrained to have anomalies that average to zero over 1961-90.*"

Elsewhere we find that this is an artificial adjustment for each grid cell, based on the temperature trend across 1961-90. This is a dubious practice when the failure to average to zero might be, for land grid cells, because observation stations stopped or started operation, or were influenced by urbanization, for coastal grid cells because of a shift between observation stations and sea temperatures, and for sea grid cells because of the inaccurate temperatures shown above.

13. The HadCRUT3 dataset has inaccurate data for the Antarctic.

Very few observation stations operated in the Antarctic prior to 1982, which leaves insufficient years from which to calculate the long-term averages. If the long-term averages were supplied by the WMO then these could only be estimates because of the shortage of historical data.

⁶⁵ Rayner, N.A., P. Brohan, D.E. Parker, C.K. Folland, J.J. Kennedy, M. Vanicek, T. Ansell and S.F.B. Tett, (2006) Improved analyses of changes and uncertainties in marine temperature measured in situ since the mid-nineteenth century: the HadSST2 dataset. *J. Climate*, **19**, 446-469.

Without accurate data from this region the global averages are likely to be inaccurate, the total area involved making up for the relatively low weighting of each grid cell.

14. Values for data cells are sometimes inconsistent with neighbouring cells.

The HadCRUT3 dataset contains instances where the value for the central cell of a group of 9 (3 x 3) cells is markedly different to the average of the surrounding cells and more than 3°C different to the nearest value from any of those other cells. This suggests that HadCRUT3 consistency checks are poor.

Some examples:

-12.89°C when the average of surrounding grid cells was -2.345°C,

-9.075°C when the average was 1.482°C,

+10.320°C when the average was 1.701°C

The dataset also contains situations where the relationship between adjacent grid cells shows marked shifts (see Figure 5-5)

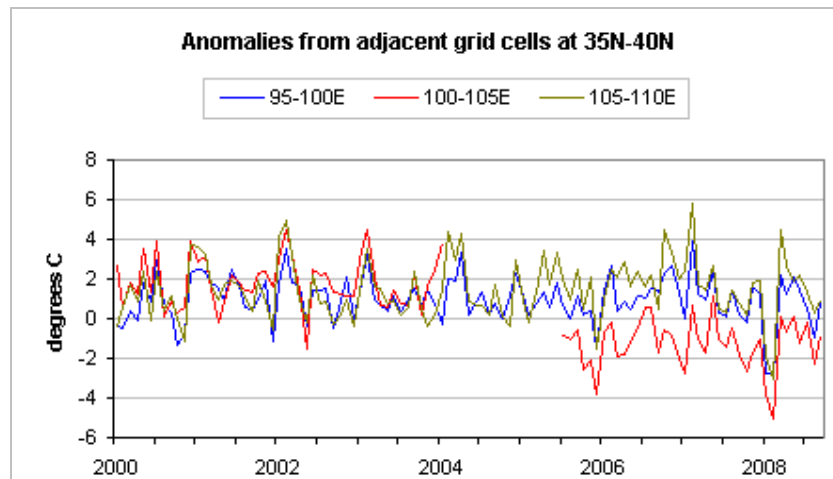


Figure 5-5 Temperature anomalies from adjacent cells showing a clear shift in the relationship between the data after a period where no data was provided for a certain grid cell.

These 14 issues cast very serious doubt on the accuracy of the temperature data used by the IPCC.

Further, since the IPCC 4AR was published several additional possible discrepancies in temperature data have surfaced. It appears that since the early 1990's the CRU has ignored data from 75% of Russian observation stations, and all observation stations in Northern Canada have been closed and distorted the temperatures recorded for that region. In Australia and New Zealand questions are being asked about manual adjustments to recorded temperatures.

In response to the reaction to the "Climategate" files, but perhaps in less response to questions now being asked by researchers, the UK's Hadley Centre is now, after the IPCC has been in existence for 20 years, undertaking a review of the temperature datasets.

This begs the question of why the IPCC has not previously obtained an independent review of the temperature data on which its claims so heavily rely. This might be because the team preparing the data resisted all attempts by external reviewers but it might also be that the Hadley Centre is a close associate of the IPCC, providing 10 authors to the pivotal chapter of the 4AR and that the UK Met Office, the parent organization of the Hadley Centre, being led for many years by the chairman of IPCC Working Group I. This cosy relationship is unhealthy for

honest data and honest science, but as we've already seen, honest science doesn't appear to be a high priority at the IPCC.

Summary

The 14 factors listed above and the questions raised since the publication of IPCC 4AR indicate that serious doubts exist over the integrity and accuracy of the HadCRUT3 temperature dataset. To understand the implications of these problems with the data consider the possible impact the following might have:

- if high quality data with good coverage was available for the Antarctic prior to 1982
- if no rural stations had been closed in Siberian Russia and northern Canada since 1985
- if all sources had full data across 1961-90 rather than as few as 15 years for the calculation of long-term averages (or rely on the WMO to estimate those averages)
- if continuous quality data was available for all grid cells in the tropical Pacific prior to 1975 rather than the intermittent data that we have

It appears that this dataset is unreliable in its current form, and this could have serious consequences for the IPCC. First, the temperatures in any given month or year are uncertain and the pattern over several years cannot be stated with any confidence. Second, any trends calculated from this data are rendered useless. Third, if the IPCC report cites papers that assume the HadCRUT3 temperature data to be accurate then statements made in relation to those papers will be questionable. Fourth, climate models that are tuned to match this data as closely as possible may well have been tuned to incorrect data, which would make those models inaccurate and useless for attributing temperature changes to human activity and for predicting future temperatures.

Much of the IPCC's argument and claims will be undermined if this data is not correct and there's good reason to believe that this is the case. The belated review of temperature data, not by the IPCC but by the provider of the data, speaks volumes about the IPCC's apparent lack concern about the integrity of the data and the organization's transparency.

Chapter 6 - Flawed Climate Models

Starting with the First Assessment report of 1990 the IPCC has relied heavily on climate models for both its claims about a human influence on climate and its projections of future temperatures, regardless of the crudeness of the models, the limited knowledge on which they were constructed and their omissions. If we step back earlier than 1990 we find that Bert Bolin used models that were probably even more primitive back in the 1960's when he was making his dubious claims to a gullible audience.

The Third Assessment Report was rather honest when it said - "The climate system is a coupled non-linear chaotic system, and therefore the long-term prediction of future climate states is not possible."⁶⁶, but the Fourth Assessment Report got back on theme with its claims about "likely" future temperatures.

In order to properly model a situation one needs good knowledge about all of the relevant factors, right? The IPCC doesn't seem to think so. Listed in Table 6-1 are the levels of scientific understanding (LoSU) for various climate forces associated with radiation according to the IPCC's third and fourth assessment Reports. In the Third Assessment Report 12 of the 15 climate forces listed had a LoSU below "medium" and in the Fourth Assessment report it was 13 of 16 forces. On the basis of this information it beggars belief that climate models could be accurate and it would be ludicrous to suggest that they are.

Climate Forcing	Level of Scientific Understanding
Greenhouse gases (halogens, N ₂ O, CH ₄ , CO ₂)	High
Stratospheric ozone	Medium
Tropospheric ozone	Medium
Aerosols - Sulphate	Low
Aerosols - Carbon from fossil fuel burning	Very Low
Aerosols - Biomass burning	Very Low
Aerosols - Mineral dust	Very Low
Aerosols - indirect effects	Very Low
Aviation - induced contrails	Very Low
Aviation - induced cirrus	Very Low
Land use - albedo only	Very Low
Solar radiative forcing	Very Low

Table 6-1(a) - Levels of scientific understanding of various climate forces according to the IPCC's TAR (2001)⁶⁷

⁶⁶ From pg 771, chapter 14, IPCC TAR (2001)

⁶⁷ Chapter 6, WG I contribution to IPCC Third Assessment Report, repeated in Summary for Policymakers

Climate Forcing	Level of Scientific Understanding
Long-lived greenhouse gases	High
Stratospheric ozone	Medium
Tropospheric ozone	Medium
Direct Aerosol	Medium to Low
Surface albedo (Land Use)	Medium to Low
Cloud albedo effect (all aerosols)	Low
Stratospheric water vapour from CH ₄	Low
Surface albedo (Black Carbon aerosol on snow)	Low
Persistent Linear Contrails	Low
Solar irradiance	Low
Volcanic aerosol	Low
Stratospheric water vapour from causes other than CH ₄ oxidation	Very Low
Tropospheric water vapour from irrigation	Very Low
Aviation-induced cirrus	Very Low
Cosmic rays	Very Low
Other surface effects	Very Low

Table 6-1(b) - Levels of scientific understanding of various climate forces according to the IPCC's 4AR (2007)⁶⁸

Earlier in this document (Chapter 3) we saw, in response to a reviewer's comment, an admission that climate models failed to reproduce observed correlations between temperature and fluctuations in solar forces, viz:

"The empirical evidence for climate response to solar variability, though increasingly convincing and extensive does not have a "home" in any of the IPCC chapters because of concern [sic] that it cannot be readily explained at the present time, and because if taken as genuine and not spurious observations, the evidence *raises flags about current understanding of climate change that may undermine credibility of climate models which are typically unable to reproduce the observed correlations.*" (my emphasis)

If that's not enough, the IPCC tells us in its Fourth Assessment report that another well-recognised climate force isn't modelled with much accuracy either.

Chapter 3 of the IPCC 4AR contained numerous comments about the influence of the El Niño-Southern Oscillation (ENSO) on various climate forces (e.g. temperature, rainfall, hurricanes, cloud cover, pressure cell blocking). The word "ENSO" appears 79 times in 82 pages of text (i.e. excluding the index and references). Among those uses appear the following, which for clarity have had the citing of references removed.

- (a) "Atmospheric circulation variability and change is largely described by relatively few major patterns. The dominant mode of global-scale variability on interannual time scales is ENSO, although there have been times when it is less apparent. The 1976–1977 climate shift, related to the phase change in the Pacific Decadal Oscillation and more frequent El Niños, has affected many areas and most tropical monsoons."
- (b) "Interannual variations in the heat fluxes to the atmosphere can exceed 100 W m⁻² locally in individual months, but the main prolonged variations occur with the El Niño-Southern Oscillation (ENSO), where changes in the central tropical Pacific exceed ±50 W m⁻² for many months during major ENSO events"
- (c) "The Pacific is dominated by ENSO and modulated by the Pacific Decadal Oscillation (PDO), which may provide ways of moving heat from the tropical ocean to higher latitudes and out of the ocean into the atmosphere"

⁶⁸ from table 2.11, pg 201, chapter 2, WGI contribution to IPCC 4AR

- (d) "... globally, very dry areas (defined as land areas with a PDSI⁶⁹ of less than -3.0) more than doubled (from ~12 to 30%) since the 1970s, with a large jump in the early 1980s due to an ENSO-related precipitation decrease over land and subsequent increases primarily due to surface warming."
- (e) "The El Niño-Southern Oscillation has global impacts, manifested most strongly in the northern winter months (November–March)."
- (f) "El Niño-Southern Oscillation events involve large exchanges of heat between the ocean and atmosphere and affect global mean temperatures. The 1997–1998 event was the largest on record in terms of SST anomalies and the global mean temperature in 1998 was the highest on record (at least until 2005)."
- (g) "The 1976–1977 climate shift in the Pacific, associated with a phase change in the PDO from negative to positive, was associated with significant changes in ENSO evolution and with changes in ENSO teleconnections and links to precipitation and surface temperatures over North and South America, Asia and Australia."
- (h) "The main modulating influence on tropical cyclone activity in the western North Pacific appears to be the changes in atmospheric circulation associated with ENSO, rather than local SSTs. In El Niño years, tropical cyclones tend to be more intense and longer-lived than in La Niña years and occur in different locations."

If models are to accurately replicate temperature then it follows that they must incorporate accurate predictions of the state of the ENSO and accurately describe the dispersion of heat mentioned in items (a, e, f, g and h) above.

Chapter 8 of the IPCC 4AR comments on the current quality of ENSO modelling⁷⁰. The comment, one large paragraph, starts by noting claims of improvements in the modelling and then says, "Despite this progress, serious systematic errors in both the simulated mean climate and the natural variability persist", and goes on to outline the errors in the seven sentences that follow the statement. The list below presents those sentences, again shown without the citing of references.

1. [T]he so-called 'double ITCZ'⁷¹ problem noted by ... remains a major source of error in simulating the annual cycle in the tropics in most AOGCMs⁷², which ultimately affects the fidelity of the simulated ENSO.
2. Along the equator in the Pacific the models fail to adequately capture the zonal SST gradient, the equatorial cold tongue structure is equatorially confined and extends too far too to the west, and the simulations typically have thermoclines that are far too diffuse.
3. Most AOGCMs fail to capture the meridional extent of the anomalies in the eastern Pacific and tend to produce anomalies that extend too far into the western tropical Pacific.
4. Most, but not all, AOGCMs produce ENSO variability that occurs on time scales considerably faster than observed, although there has been some notable progress in this regard over the last decade in that more models are consistent with the observed time scale for ENSO.

⁶⁹ PDSI = Palmer Drought Severity Index

⁷⁰ See section 8.4.7, WGI contribution, IPCC 4AR

⁷¹ ITCZ = Intertropical Convergence Zone (where winds from the two hemispheres meet)

⁷² AOGCM = Atmosphere-Ocean Global Climate Model

5. The models also have difficulty capturing the correct phase locking between the annual cycle and ENSO.
6. Further, some AOGCMs fail to represent the spatial and temporal structure of the El Niño-La Niña asymmetry.
7. Other weaknesses in the simulated amplitude and structure of ENSO variability are discussed in ...

and later, in relation to seasonal predictions, the most favourable claim that can be made is ...

"Results indicated considerable model skill out to 12 months for ENSO prediction"⁷³

Together these quotes from two chapters of the IPCC 4AR make it clear that the ENSO is a significant force on global weather patterns and that serious flaws exist in its modelling.

It is sometimes considered that ENSO events - El Niño (warming) and La Nina (cooling) - are short-term events that have no bearing on long-term climate, but this impression is false. If there was a general shift towards more frequent La Nina events, or conditions close to that arbitrary threshold, then a trend line running from prior to that period and then into that period would show a downward trend in temperatures. In contrast, if El Niño events, or conditions close to them, began to dominate then temperature trend would be upwards. As mentioned above in the quotes from the IPCC report, El Niño conditions have been more frequent since 1976-77, so it is entirely plausible that this could account for some of the rising temperature trend that started rising in January 1977, and that means that the poor modelling of ENSO conditions might be having very serious consequences.

Hiding the Problem

The IPCC 4AR attempts to hide the inaccuracy of models by taking a "consensus" of their output, expressed often as a mean value of that output. This is meaningless because the models must reasonably replicate 1950-1990 temperatures before being accepted by the IPCC, also the models are not created independently from each other because information, algorithms and people move between the modelling groups. Figure 6-1 shows IPCC Figure FAQ 8.1, Figure 8.1 (chapter 8, pg 600) with the colour of graph lines of model output modified from the original yellow. (Was the original colour selected in order that the details would be difficult to determine on a white background?)

Clearly the mean of the output of models varied considerably from the observational data, especially prior to 1960 and the individual models varied by about 0.5°C on some occasions. If the "science is settled" as the IPCC or its followers frequently claim, then why do the models produce such varying output, and why have more than one model to encapsulate the "settled" science?

⁷³ The expression "considerable model skill" is an unquantified opinion, just like "reasonably well", which is another favourite of modellers. Both expressions are probably the lowest levels of quality that climate modellers will openly admit to for the simple reason that their employment and reputation rests on these models.

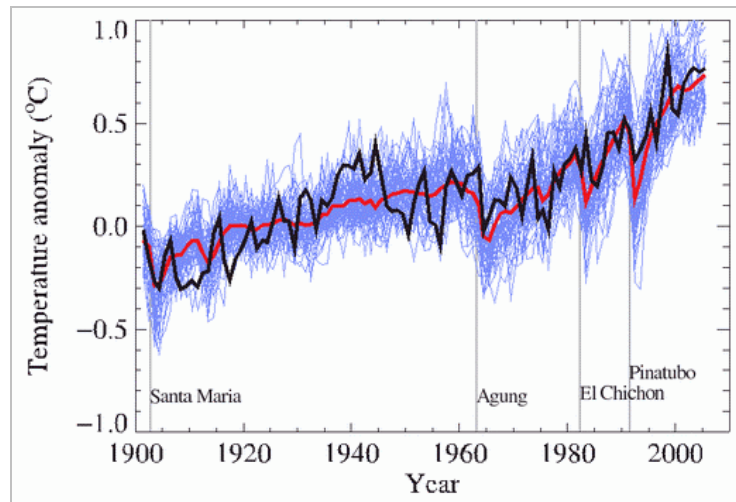


Figure 6-1 - Modified colour of IPCC 4AR Fig 8.1. **Original caption** - Global mean near-surface temperatures over the 20th century from observations (black) and as obtained from 58 simulations produced by 14 different climate models driven by both natural and human-caused factors that influence climate (BLUE). The mean of all these runs is also shown (thick red line). Temperature anomalies are shown relative to the 1901 to 1950 mean. Vertical grey lines indicate the timing of major volcanic eruptions.

At various other points the IPCC 4AR refers to "trends in model output" or the statistical analysis of the distribution of model output. These should be taken for what they are - ploys to hide the fundamental inaccuracies of climate models.

Detection and Attribution

Chapter 9 of the IPCC 4AR has this to say about the detection and attribution of climate changes

"'Detection' is the process of demonstrating that climate has changed in some defined statistical sense, without providing a reason for that change (see Glossary). In this chapter, the methods used to identify change in observations are based on the expected responses to external forcing (Section 9.1.1), either from physical understanding or as simulated by climate models. An identified change is 'detected' in observations if its likelihood of occurrence by chance due to internal variability alone is determined to be small.

"'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 (see Glossary). 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, in practice attribution of anthropogenic climate change is understood to mean demonstration that a detected change is 'consistent with the estimated responses to the given combination of anthropogenic and natural forcing' and 'not consistent with alternative, physically plausible explanations of recent climate change that exclude important elements of the given combination of forcings' (IPCC, 2001)."

You will notice under these descriptions a change is said to be "detected" if an observation doesn't agree with the output of models, and that a change can be 'attributed' to human activity if the observation is (a) consistent with estimates (i.e. model output) that include anthropogenic forces and (b) not consistent with estimates that do not include an anthropogenic component.

This use of the expression "consistent with" is an alternative method of announcing a strong correlation between the two factors. The IPCC has on numerous occasions attempted to claim that correlation is proof of causation when such a claim is completely mendacious. The use of "consistent with" carries that mendacity even further.

The IPCC's method of attribution is a merely a small shift from an earlier IPCC attitude that was utterly risible - "We don't know how else to explain it". Perhaps the IPCC got wise to the fact that similar reasoning led to ancient beliefs that various gods were responsible for phenomena such as thunder, earthquake, flood and drought, and that the flammability of a substance was determined by the amount of phlogiston it contained. This line of "reasoning" is of course simply a confession of ignorance.

The method of attribution has a more serious implication - that a change cannot be attributed to a climate force unless that force can be modelled with sufficient accuracy that its presence in or absence from a climate model produces output of sufficient detail for a clear judgement as to whether it is consistent or inconsistent with observations. To put it in simpler terms, if the force can't be accurately modelled then the IPCC will ignore it as a possible candidate when it comes to attributing a cause.

The IPCC's current statement about attribution is predicated on the notion that climate models are 100% accurate for every climate force but the tables at the start of this chapter, and other comments here and in earlier chapters, show that this isn't so. Those tables, derived from two IPCC reports, also show that the only force that is well understood is greenhouse gases, and it logically follows that by the IPCC's distorted reasoning it is inevitable that manmade greenhouse gases will be blamed for "detected" changes in climate.

Not only are greenhouse gases being blamed for warming because of deficiencies in climate models but, given the IPCC's clear belief since its establishment and its influence over climate science as a whole, one can speculate about how much effort is being put into improving the modelling of poorly understood forces.

Summary

The facts are very simple - climate models are incomplete, according to the IPCC, and therefore they are inaccurate. The IPCC is duplicitous in regard to all three of its uses of climate models.

- (a) The detection of change, on the basis of observations failing to conform to the output of certain models, will be false if those models include inaccurate or incomplete mathematical descriptions of forces.
- (b) The attribution of change to certain forces is false if all forces are not accurately represented, and the IPCC's claim that consistency with models is proof of cause is utter nonsense.
- (c) The notion that incomplete models can accurately predict temperatures 50, 70 or even 100 years into the future is absolute fantasy.

The IPCC was founded on the claims based on very primitive climate models and every assessment report has relied heavily on climate models for claims about attribution and future temperatures, but given that the IPCC 4AR of 2007 said very clearly that climate models are inaccurate, it follows that every IPCC report has been knowingly fraudulent

Chapter 7 - Summary

The IPCC has perverted the scientific method, and science in general, in order to pursue what seems to be a political agenda. It was founded on claims based on primitive climate models and has persisted with using climate models despite being well aware that the level of scientific understanding for many climate forces is inadequate for the creation of accurate models.

Under the IPCC's system of attributing blame for climate change, only factors that can be modelled can have blame assigned to them. The IPCC Fourth Assessment Report says that greenhouse gases are the only radiative force that is well understood, so in the virtual world of the IPCC and its simplistic and distorted attribution system, variations in climate are attributed to greenhouse gases and by extension to human activity.

Some key issues:

1. The establishment of the IPCC was driven by the alarmist views of one individual, Bert Bolin, who based his political-activism on the output of primitive climate models. Had the ICSU and UNEP any integrity they would have regarded those models as so far from complete and accurate as to be unreliable and unworthy of support, but instead they drove the establishment of the IPCC and proposed that Bolin lead it, thus driving away moderate and rational voices.
2. The overwhelming impression is that the findings of the IPCC were decided prior to its establishment and the organization has been tasked with finding or creating the supporting data, or attempting to legitimise the use of incomplete, inaccurate climate models, that will support those findings. This is a perversion of the normal scientific method under which a hypothesis is developed only after analysing the data.
3. The temperature data used by the IPCC is very suspect, which the IPCC should be aware of if it had taken any steps to investigate the integrity of the data.
4. The IPCC acknowledges that many climate forces are poorly understood, including a force that elsewhere in the 4AR was described as a significant influence on global conditions. This poor level of understanding means that such forces cannot be modelled with any accuracy, which in turn means that climate models cannot be anything but inaccurate. To pretend that these models are accurate, as the IPCC has done, is dishonest.
5. When insufficient material to support the IPCC's claims could be found, IPCC authors rallied together to create documents that IPCC reports could cite. That the IPCC governing bodies did not condemn such action suggests that the organization has no integrity, or at the very least that the IPCC is not an impartial source of information.
6. Any passage of text in an IPCC Assessment report will very likely be the product of very few people, which means that it very likely includes various biases stemming from individuals' agendas, including the defence of one's own work in this field and the denigration of alternative opinions. This is not an impartial assessment of the facts.
7. Pivotal chapters were written by a network of climate modellers with vested interests, relying heavily on their own papers, which were likely reviewed by other climate modellers who may also have been co-authors of the same chapter. The IPCC appears to support these vested interests rather than act as an impartial assessor, and this diminishes its integrity and credibility.
8. The IPCC has a habit of obfuscation, clearly displayed by how it exaggerates, omits clarifying information, is imprecise and seems reluctant to include highly relevant information.

- (a) - It implied that thousands of people were in agreement with every word of the Assessment Reports but that figure is both a total for all sections of the reports, rather than pertaining to individual passages of text, and a gross distortion of the opinions of many reviewers. It looks likely that as few as 3 authors might have been in agreement on any passage of text, and probably rarely more than 8 or 10. The IPCC's implication, or at least its failure to clarify the situation, is therefore dishonest
 - (b) - It frequently uses trends, long-term averages and inconsistent time periods for the calculation of long-term averages. These mask the chaotic variation in temperature and the influence of volcanic eruptions and ENSO or other natural events, and most of all how the correlation with rising carbon dioxide is only evident from about 1977 to 1997. This use of trends and averages is fundamentally dishonest.
 - (c) - It implies that its expressions of likelihood have a solid basis in mathematics when in fact they are merely a collection of opinions, often from people with vested interests. The IPCC's action is deceitful.
 - (d) It has publicly claimed that an overwhelming consensus exists among climate scientists but has failed to produce any evidence to support this or show why science should reject the notion that scientific truth is likely shown when a hypothesis accounts for all observations and successfully predicts new situations, and does so regardless of the number of people professing belief. The IPCC's claims about consensus are meaningless to science but geared to publicity and politics.
 - (e) The draft of its 2007 Assessment Report failed to mention, until pressured by a reviewer, that the warming due to carbon dioxide theoretically decreases as the concentration of the gas increases and when the statement did appear in the text it was obscured among other text. This action is duplicitous.
9. In order to force its unsubstantiated opinions on the world the IPCC has used publicity campaigns to influence public opinion and to put pressure on sovereign governments both from voters and via United Nations bodies such as the UN FCCC. This pressure has corrupted the allocation of research funding and therefore suborned scientists who need that funding as a source of income. These actions should be regarded as activism rather than honest science.

In light of the above, the IPCC's so-called evidence for manmade warming looks decidedly weak.

It is not easy to find a cohesive summary of the points of evidence that the 4AR presents because we are blitzed with correlations and the usual collective opinions dressed up as probabilities, and again the IPCC seems intent on obscuring rather than clarifying. From what I can establish the so-called evidence consists of four points:

- (a) *temperatures are rising and the rise is widespread*
 - which may be correct but the temperature data is probably too unreliable to cite with much confidence
- (b) *variation in temperature cannot be explained by internal variability*
 - this claim is undermined by the inability of climate models to replicate the most significant "internal variability", the El Nino-Southern Oscillation system
- (c) *the distribution of warming is inconsistent with models*
 - undermined again by poor models based on low levels of understanding
- (d) *the fact that climate models need to include anthropogenic influences in order to produce output that reasonably matches observations*

- this is not evidence when the models poorly replicate other climate forces; it is merely the product of the IPCC's skewed system of attribution being applied to the one climate force that appears to be well understood.

The IPCC's so-called evidence is a travesty. After twenty years of work the best the IPCC can produce is a tissue of claims based on a fundamental mendacity about the integrity and accuracy of climate models.

I suppose that we shouldn't be too surprised at this conclusion given that the First Assessment Report was a similar concoction that was eventually honest enough to say that no evidence was found, and then for the Second Assessment Report, in desperation for supporting material various IPCC authors wrote a paper so that it could be cited. The Third Assessment Report elevated the alarmism over the second report, mainly by the use of a flawed graph cited by its creator, and the Fourth Report had a political imperative to further exaggerate the claims despite the paucity of credible evidence.

The IPCC has been a disgrace to science. Integrity has been rejected in favour of the post-normal science approach of deciding a hypothesis - or even a conclusion - and then searching for supporting data. The IPCC's brand of eco-political activism has of course been helped at every opportunity by its acolytes making media statements that seek to blame human activity for climate changes that could very well have natural causes.

Despite the IPCC's hyperbole there is no evidence at all that anthropogenic emissions of carbon dioxide have a *significant* influence on temperatures, and I venture to say, no evidence of any net influence whatsoever.

Chapter 8 - Recommendations

Context

Before making any recommendations a few relevant comments should be made in order to establish a context.

Firstly, the UNEP has a track record of putting more emphasis on publicity than on science. This was made very clear by the exaggerated claims in the 1970s about acid rain killing trees and by its very dubious statements about CFC's posing a serious threat to the ozone layer. Scientific evidence was weak in both instances and yet the UNEP publicity machine tried to pressure the world into action by posing all manner of dire threats.

The hand of the UNEP is very obvious in how publicity is a key component of the IPCC's actions, and that's despite the questionable temperature data, inaccurate models, disputed science, numerous omissions of relevant information and the IPCC's very poor record of temperature forecasts.

Secondly, it only makes sense to involve sovereign governments in joint action if it is clear that the role of each will contribute to a solution. In the case of climate variation, any adaptation would be tailored to suit local conditions and any joint action could only apply to what the IPCC incorrectly terms "mitigation". Mitigation is an act of making something less severe, and that can only be effective if the causes are clearly identified and meaningful action can be taken against them. Twenty years have passed since the IPCC was established to investigate if human activity posed a risk to climate and still no credible evidence has been produced to support its claims, which means that mitigation, as a joint action by governments, is currently pointless and unwarranted.

The UNFCCC has tried to pressure governments into mitigation, specifically to take action to limit or reduce carbon dioxide emissions. This has no scientific justification because it has not been proven that those emissions have anything but a negligible influence on temperature.

Thirdly, the IPCC makes it clear that many climate forces are poorly understood. This makes it illogical to regard climate models as accurate at least until such time as knowledge of those forces improves. The climate research focus on manmade warming can be seen as an indirect consequence of the IPCC and UNFCCC putting pressure on governments to accept their unproven hypothesis. While a narrow focus persists in climate research little advance in our understanding can be expected.

Recommendations

On the basis of the above it is recommended that:

1. The IPCC, and the UNFCCC that it serves, be disbanded.

These organizations have been founded on faulty assumptions and shown little integrity and candour when it comes to uncertainties and the possible influences of other forces. Both appear to have a political agenda without scientific justification. Neither has provided any evidence for restricting or reducing carbon dioxide emissions and yet on the claims of the IPCC the UNFCCC has demanded that sovereign governments impose onerous conditions on their citizens and businesses and have threatened huge financial penalties for countries that fail to meet certain unjustifiable requirements.

2. The World Meteorological Organization (WMO) be given the primary role in climate matters.

Although the WMO's focus has been largely on weather it does deal with climate matters so taking a primary role would not impose a huge new burden. The WMO is the best-qualified body for dealing with meteorology issues and unlike the IPCC it places stronger emphasis on observations and real science rather than on the "virtual science" of climate models.

The Internet pages of the WMO suggest that when it comes to climate matters the WMO has a narrow focus on manmade warming, ozone depletion and aerosols, all of which are arguably anthropogenic forcings, but it should be able to free itself of those shackles - which I suspect it has forced upon itself by co-sponsoring the IPCC - and widen its gamut and encourage research into all plausible climate forces. This action should result in a better understanding of climate and significant improvements in climate modelling.

The established communication channels between the WMO and national meteorological bodies give the WMO better credibility than the current agencies that provide this data. Those links to national bodies also provide communication the other way, enabling the WMO to provide, or at least act as a distribution point, for information about adaptation and, when clearly justified and required, mitigation and it does so via the local scientific bodies with the greatest expertise in these matters rather than by the media-driven coercion of the IPCC.

3. The WMO should prepare and maintain temperature datasets

By drawing on its links to national meteorological services the WMO should collate all temperature data and from it create temperature datasets in an open and transparent manner (c.f. the existing agencies which have actively discouraged independent review). The WMO should maintain and extend these datasets as required.

Paleoclimatology, by which proxies are used to determine historical climate patterns, may be new to the WMO but I am confident that it could rapidly acquire expertise in this area.

4. Annual Climate Summaries should be prepared in an open and transparent fashion

The WMO currently publishes weather summaries and so it should not be an arduous task to also produce annual summaries of climate research. The IPCC has produced large and contentious reports at intervals of 5 years so annual summaries will be both more contemporary and easier to comprehend.

Science would be best served by these summaries separately discussing multiple lines of research because this would gather all material dealing with each specific subject. One potential subject area would be possible anthropogenic influences on climate but it would be just one of several lines, among them perhaps the influence of ENSO and other oscillations, and the influence of solar forces of various types.

Emphasis should be placed on the integrity of cited papers and to this end there should be insistence on the full public disclosure of data and methods employed by these papers and, where considered necessary, papers should only be cited when they have been found acceptable by appropriate experts with no connection to the papers' authors or the review undertaken by the journals in which the papers were published.

Climate Science is currently in a parlous state and has been driven there by the IPCC. The adoption of these recommendations should reinvigorate the science and largely disengage it from politics.