"Consensus"? What "Consensus"?

Among Climate Scientists, the Debate Is Not Over

by

The Viscount Monckton of Brenchley

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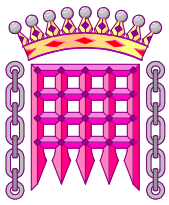


Abstract

It is often said that there is a scientific "consensus" to the effect that climate change will be "catastrophic" and that, on this question, "the debate is over". The present paper will demonstrate that the claim of unanimous scientific "consensus" was false, and known to be false, when it was first made; that the trend of opinion in the peer-reviewed journals and even in the UN's reports on climate is moving rapidly away from alarmism; that, among climate scientists, the debate on the causes and extent of climate change is by no means over; and that the evidence in the peer-reviewed literature conclusively demonstrates that, to the extent that there is a "consensus", that "consensus" does not endorse the notion of "catastrophic" climate change.

The origin of the claim of "consensus"

David Miliband, the Environment Minister of the United Kingdom, was greeted by cries of "Rubbish!" when he told a conference on climate change at the Holy See in the spring of 2007 that the science of climate and carbon dioxide was simple and settled. Yet Miliband was merely reciting a mantra that has been widely peddled by politicians such as Al Gore and political news media such as the BBC, which has long since abandoned its constitutional obligation of objectivity on this as on most political subjects, and has adopted a policy of not allowing equal air-time to opponents of the imagined "consensus".

The claim of "consensus" rests almost entirely on an inaccurate and now-outdated single-page comment in the journal *Science* entitled *The Scientific Consensus on Climate Change* (Oreskes, 2004). In this less than impressive "head-count" essay, Naomi Oreskes, a historian of science with no qualifications in climatology, defined the "consensus" in a very limited sense, quoting as follows from IPCC (2001) –

> "Human activities … are modifying the concentration of atmospheric constituents … that absorb or scatter radiant energy. … most of the observed

> warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations."

The limited definition of "consensus"

Oreskes' definition of "consensus" falls into two parts. First, she states that humankind is altering the composition of the atmosphere. This statement is uncontroversial: for measurement has established that the concentration of carbon dioxide in the atmosphere has risen over the past 250 years to such an extent that CO2 now constitutes almost 0.01 per cent more of the atmosphere than in the pre-industrial era. However, on the question whether that alteration has any detrimental climatic significance, there is no consensus, and Oreskes does not state that there is.

The second part of Oreskes' definition of the "consensus" is likewise limited in its scope. Since global temperatures have risen by about 0.4C in the past 50 years, humankind – according to Oreskes' definition of "consensus" – may have accounted for more than 0.2C.

Applying that rate of increase over the present century, and raising it by half to allow for the impact of fast-polluting developing countries such as China, temperature may rise by 0.6C in the present century, much as it did in the past century, always provided that the unprecedented (and now-declining) solar activity of the past 70 years ceases to decline and instead continues at its recent record level.

There is indeed a consensus that humankind is putting large quantities of greenhouse gases into the atmosphere; that some warming has resulted; and that some further warming can be expected. However, there is less of a consensus about whether most of the past half-century's warming is anthropogenic, which is why, rightly, Oreskes is cautious enough to circumscribe her definition of the "consensus" about the anthropogenic contribution to warming over the past half-century with the qualifying adjective "likely".

There is no scientific consensus on how much the world has warmed or will warm; how much of the warming is natural; how much impact greenhouse gases have had or will have on temperature; how sea level, storms, droughts, floods, flora, and fauna will respond to warmer temperature; what mitigative steps – if any – we should take; whether (if at all) such steps would have sufficient (or any) climatic effect; or even whether we should take any steps at all.

Campaigners for climate alarm state or imply that there is a scientific consensus on all of these things, when in fact there is none. They imply that Oreskes' essay proves the consensus on all of these things. Al Gore, for instance, devoted a long segment of his film *An Inconvenient Truth* to predicting the imminent meltdown of the Greenland and West Antarctic ice-sheets, with a consequent global increase of 20 feet (6 m) in sea level that would flood Manhattan, Shanghai, Bangladesh, and other coastal settlements. He quoted Oreskes' essay as proving that all credible climate scientists were agreed on the supposed

threat from climate change. He did not point out, however, that Oreskes' definition of the "consensus" on climate change did not encompass, still less justify, his alarmist notions.

Let us take just one example. The UN's latest report on climate change, which is claimed as representing and summarizing the state of the scientific "consensus" insofar as there is one, says that the total contribution of ice-melt from Greenland and Antarctica to the rise in sea level over the whole of the coming century will not be the 20 feet luridly illustrated by Al Gore in his movie, but just 2 inches.

Gore's film does not represent the "consensus" at all. Indeed, he exaggerates the supposed effects of ice-melt by some 12,000 per cent. The UN, on the other hand, estimates the probability that humankind has had *any* influence on sea level at little better than 50:50. The BBC, of course, has not headlined, or even reported, the UN's "counter-consensual" findings. Every time the BBC mentions "climate change", it shows the same tired footage of a glacier calving into the sea – which is what glaciers do every summer.

What Oreskes said

Oreskes (2004) said she had analyzed –

> "928 abstracts, published in refereed scientific journals between 1993 and 2003, and listed in the ISI database with the keywords 'climate change'."

She concluded that 75% of the papers either explicitly or implicitly accepted the "consensus" view; 25% took no position, being concerned with palaeoclimate rather than today's climate; and –

> "Remarkably, none of the papers disagreed with the consensus position. … This analysis shows that scientists publishing in the peer-reviewed literature agree with IPCC, the National Academy of Sciences, and the public statements of their professional societies. Politicians, economists, journalists, and others may have the impression of confusion, disagreement, or discord among climate scientists, but that impression is incorrect. … Our grandchildren will surely blame us if they find that we understood the reality of anthropogenic climate change and failed to do anything about it. … There is a consensus on the reality of anthropogenic climate change."

It is not clear whether Oreskes' analysis was peer-reviewed, since it was presented as an essay and not as a scientific paper. However, there were numerous serious errors, effectively negating her conclusion, which suggest that the essay was either not reviewed at all or reviewed with undue indulgence by scientists who agreed with Oreskes' declared prejudice – shared by the editors of *Science* - in favour of the alarmist position.

What Oreskes got wrong

Dr. Benny Peiser, of Liverpool John Moores University in the UK, conducted a search of the peer-reviewed literature on the ISI Web of Science database between 1993 and 2003. He found not 928 but more than 12,000 papers mentioning the phrase "climate change". When he pointed this out, the editors of *Science* were compelled to publish an erratum to the effect that the search term which Oreskes had used was not, as stated in her essay, "climate change" but rather "global climate change". Accordingly, Oreskes' essay had covered not the entire corpus of scientific papers on climate change over the stated decade but fewer than one-thirteenth of them.

Dr. Peiser used "global climate change" as a search term and found 1,117 documents using this term, of which 929 were articles and only 905 also had abstracts. Therefore it is not clear which were the 928 "abstracts" mentioned by Oreskes, and *Science* did not, as it would have done with a peer-reviewed scientific paper, list the references to each of the "abstracts".

Significantly, Oreskes' essay does not state how many of the 928 papers explicitly endorsed her very limited definition of "consensus". Dr. Peiser found that only 13 of the 1,117 documents – a mere 1% – explicitly endorse the consensus, even in her limited definition.

Dr. Peiser's research demonstrated that several of the abstracts confounded Oreskes' assertion of unanimity by explicitly rejecting or casting doubt upon the notion that human activities are the main drivers of the observed warming over the last 50 years. Thus, in Oreskes' sample, more than twice as many appeared to have explicitly rejected or doubted the "consensus" as had explicitly endorsed it.

According to Dr. Peiser, fewer than one-third of the papers analyzed by Oreskes either explicitly or implicitly endorsed the "consensus", contrary to Oreskes' assertion that the figure was 75%. In addition, 44 abstracts focused on the natural as opposed to anthropogenic causes of climate change, and did not include any direct or indirect link or reference to human actitivies, carbon dioxide or other greenhouse gas emissions, let alone anthropogenic forcing of recent climate change. More than half of the abstracts did not mention anthropogenic climate change at all and could not, therefore, reasonably be held to have commented either way upon the "consensus" as defined by Oreskes.

Dr. Peiser wrote to *Science* to point out these and other anomalies in Oreskes' essay. The editors of *Science* at first asked him to shorten his letter: then, after he had sent in his shortened version, they changed their minds and refused to publish it –

> "After realizing that the basic points of your letter have already been widely dispersed over the internet, we have reluctantly decided that we cannot publish your letter. We appreciate your taking the time to revise it."

In fact, Dr. Peiser had been careful to ensure that none of his material had appeared in any public forum, whether on the Internet or otherwise. In any event, it is reprehensible that a learned journal should publish defective material and should then, in effect, expect its readers to surf the Internet to find the truth.

The editors of *Science* also refused to publish any of the numerous other letters that they had received pointing out the deficiencies in Oreskes' analysis.

At the time, the editors of *Science* had received (and rejected) a research paper giving the results of a survey of some 500 international climate researchers conducted by Professors Dennis Bray and Hans von Storch of the German Institute for Coastal Research. The survey had found that –

> "a quarter of respondents still question whether human activity is responsible for the most recent climate changes."

Dr. Peiser has commented:

> "The decision to publish Oreskes' claim of general agreement (just days before an important UN conference on global warming, the Tenth Conference of the Parties to the UN Convention on Climate Change), was apparently made while the editors of Science were sitting on a paper that showed quite clearly the opposite.
>
> "It would appear that the editors of *Science* knowingly misled the public and the world's media.
>
> "In my view, such unethical behaviour constitutes a grave contravention, if not a corruption of scientific procedure. This form of unacceptable misconduct is much worse than the editors' refusal to publish the numerous letters and rebuttals regarding Oreskes' flawed study."

Furthermore, what of the countless research papers that show global temperatures were similar or even higher than today's during the Holocene Climate Optimum and the Medieval Warm Period, when atmospheric CO_2 levels were much lower than at present?

What of the papers showing that solar variability is a key driver of recent climate change, and that in the past 70 years the Sun has been more active, for longer, than at almost any comparable period in the past 11,400 years?

What of the papers echoing Lorenz (1963), who, in the paper that founded chaos theory, stated and demonstrated his famous theorem that the climate is a mathematically-chaotic object that is by its nature unpredictable unless one fully understands not only all the relevant evolutionary processes but also the initial state of the global climate to a precision that is in practice altogether unattainable?

There are hundreds of learned papers, many of them written by the world's leading experts in climatology and related fields, that have raised serious reservations about the notion of a "consensus" as to the alarmist presentation of climate change. Many of these papers explicitly reject the "consensus", even in the limited sense used by Oreskes.

There is no such thing as a "scientific consensus", except in a very limited sense. This may be readily demonstrated by quotation from dozens of papers casting doubt on the "consensus".

Some examples of papers which fell within Oreskes' search criteron and within her chosen timeframe but which she regarded as supportive of her imagined "unanimous" consensus:

- AMMANN et al. (2003) detected evidence for close ties between solar variations and surface climate.
- REID (1997) found that "the importance of solar variability as a factor in climate change over the last few decades may have been underestimated in recent studies".
- KONDRATYEV and Varotsos (1996) criticize "the undoubtedly overemphasized contribution of the greenhouse effect to the global climate change".

Two abstracts reviewed by Oreskes directly and bluntly rejected the "consensus" as she had defined it, but she counted them as "consensual" nevertheless:

> GERHARD and Hanson (2000):
>
> "The American Association of Petroleum Geologists' Ad Hoc Committee on Global Climate Issues has studied the supposition of human-induced climate change since the committee's inception in January 1998. This paper details the progress and findings of the committee through June 1999, At that time there had been essentially no geologic input into the global climate change debate. The following statements reflect the current state of climate knowledge from the geologic perspective as interpreted by the majority of the committee membership. The committee recognizes that new data could change its conclusions. The earth's climate is constantly changing owing to natural variability in earth processes. Natural climate variability over recent geological time is greater than reasonable estimates of potential human-induced greenhouse gas changes. Because no tool is available to test the supposition of human-induced climate change and the range of natural variability is so great, there is no discernible human influence on global climate at this time."

FERNAU *et al.* (1993):

> "This article examines the status of the scientific uncertainties in predicting and verifying global climate change that hinder aggressive policy making. More and better measurements and statistical techniques are needed to detect and confirm the existence of greenhouse-gas-induced climate change, which currently cannot be distinguished from natural climate variability in the historical record. Uncertainties about the amount and rate of change of greenhouse gas emissions also make prediction of the magnitude and timing of climate change difficult. Because of inadequacies in the knowledge and depiction of physical processes and limited computer technology, predictions from existing computer models vary widely, particularly on a regional basis, and are not accurate enough yet for use in policy decisions. The extent of all these uncertainties is such that moving beyond no-regrets measures such as conservation will take political courage and may be delayed until scientific uncertainties are reduced."

Though Oreskes has challenged Dr. Peiser's analysis by pointing out that the paper by Gerhard and Hansen was not peer-reviewed, her essay appears not to have been peer-reviewed either. It may even be the case that the authors of most or even all of the cited abstracts personally believe that humankind is responsible for more than half of the 0.4C observed warming of the past half century. Dr. Peiser accepts, as does the author of the present paper, that most climate scientists published in the journals probably believe that humankind has contributed more than 0.2C of the 0.4C observed warming over the past half century. But the published papers we have quoted, nevertheless, raise sufficient doubts about important aspects of the imagined "consensus" to demonstrate the falsity of Oreskes' claim that not one of the abstracts was counter-consensual.

Nor is the explicit and implicit rejection of the "consensus" confined to individual research papers such as those mentioned above. Distinguished scientific organizations such as the Russian Academy of Science and the U.S. Association of State Climatologists have also stated that they are skeptical of the imagined "consensus".

Dr. Peiser concludes:

> "The stifling of dissent and the curtailing of scientific skepticism is bringing climate research into disrepute. Science is supposed to work by critical evaluation, open-mindedness and self-correction. There is a fear among climate alarmists that the very existence of scientific skepticism and doubts about their gloomy predictions will be used by politicians to delay action. But if political considerations dictate what gets published, it's all over for science."

After examining the erroneous essay by Oreskes, the unsatisfactory circumstances in which it was published, and the failure of *Science* to correct more than one of its numerous deficiencies, we may conclude as follows:

- that Oreskes' essay provides no sound basis for the assertion that a unanimous scientific "consensus" exists on climate change, for, though most climate scientists probably believe that humankind has caused 0.2C of the past half-century's 0.4C warming, there is no unanimity;
- that even in the limited sense defined by Oreskes, there were more scientific papers explicitly doubting or even rejecting the "consensus" than explicitly supporting it;
- that less than half of the papers which Oreskes said had implicitly endorsed the "consensus" had in fact done so;
- that more than half of the papers which Oreskes considered had not mentioned anthropogenic climate change at all;
- that the definition of "consensus" in Oreskes' essay is so limited, and her findings as published so greatly at variance with the content of the papers she reviewed, that the essay provides no justification for her frankly-political contention that –

  "our grandchildren will surely blame us they find that we understood the reality of anthropogenic climate change and failed to do anything about it"; and
- that *Science,* having been given evidence of Oreskes' errors before publication, in the form of a direct survey of more than 500 climate scientists, and after it, in the form of several letters pointing out the material errors some of which we have reported here, refused to allow the survey, the letters, or any other correction to appear in print, save only the correction of the database search term which Oreskes had used.

Bringing the analysis of "consensus" up to date

Oreskes' essay is now outdated. Since it was published, more than 8,000 further papers on climate change have been published in the learned journals. In these papers, there is a discernible and accelerating trend away from unanimity even on her limited definition of "consensus".

Schulte (2007: submitted) has brought Oreskes' essay up to date by examining the 539 abstracts found using her search phrase "global climate change" between 2004 (her search had ended in 2003) and mid-February 2007. Even if Oreskes' commentary in *Science* were true, the "consensus" has moved very considerably away from the unanimity she says she found.

Dr. Schulte's results show that about 1.5% of the papers (just 9 out of 539) explicitly endorse the "consensus", even in the limited sense defined by Oreskes. Though Oreskes found that 75% of the papers she reviewed explicitly or implicitly endorsed the

"consensus", Dr. Schulte's review of subsequent papers shows that fewer than half now give some degree of endorsement to the "consensus". The abstract of his paper is worth quoting in full:

> "Fear of anthropogenic 'global warming' can adversely affect patients' well-being. Accordingly, the state of the scientific consensus about climate change was studied by a review of the 539 papers on "global climate change" found on the Web of Science database from January 2004 to mid-February 2007, updating research by Oreskes (2004), who had reported that between 1993 and 2003 none of 928 scientific papers on "global climate change" had rejected the consensus that more than half of the warming of the past 50 years was likely to have been anthropogenic. In the present review, 32 papers (6% of the sample) explicitly or implicitly reject the consensus. Though Oreskes said that 75% of the papers in her sample endorsed the consensus, fewer than half now endorse it. Only 7% do so explicitly. Only one paper refers to "catastrophic" climate change, but without offering evidence. There appears to be little evidence in the learned journals to justify the climate-change alarm that now harms patients."

Schulte's table of results is also worthy of reproduction –

Abstracts on ISI *Web of Science*	**Oreskes (2004)**	**Schulte's review**
Period under review:	1993 to 2003	2004 to 2007
Quantity of documents reviewed:	928 documents	539 papers
Mean annual publication rate:	84.3 documents.yr $^{-1}$	254.6 (+201%)
Explicit endorsement of the consensus:	Not stated	7% (38 papers)
Explicit or implicit endorsement:	75%	45% (244 papers)
Explicit rejection of the consensus	0%	1.3% (7 papers)
Explicit or implicit rejection:	0%	6% (32 papers)
New data / observations on climate change:	Not stated	24% (127 papers)
New research on the consensus question:	Not stated	2% (13 papers)
Quantitative evidence for the consensus:	Not stated	0% (no papers)
Mention of "catastrophic" climate change:	Not stated	0% (one paper)

Unlike Oreskes, who does not quote even one of the 928 papers upon which her analysis was based, Schulte cites some of the counter-consensual papers from his sample –

Cao *et al.* (2005) point out that, without the ability to quantify variations in the terrestrial carbon sink both regionally and over time, climate projections are unreliable –

> "To predict global climate change and to implement the Kyoto Protocol for stabilizing atmospheric greenhouse gases concentrations require quantifying spatio-temporal variations in the terrestrial carbon sink accurately. During the past decade multi-scale ecological experiment and observation networks have been established using various new technologies (e.g. controlled environmental facilities, eddy covariance techniques and quantitative remote sensing), and have obtained a large amount of data about terrestrial ecosystem carbon cycle. However, uncertainties in the magnitude and spatio-temporal variations of the terrestrial carbon sink and in understanding the underlying mechanisms have not been reduced significantly."

Gerhard (2004), discussing the conflict between observation, theory, and politics, says –

> "Debate over whether human activity causes Earth climate change obscures the immensity of the dynamic systems that create and maintain climate on the planet. Anthropocentric debate leads people to believe that they can alter these planetary dynamic systems to prevent what they perceive as negative climate impacts on human civilization. Although politicians offer simplistic remedies, such as the Kyoto Protocol, global climate continues to change naturally."

Leiserowitz (2005) reports –

> "results from a national study (2003) that examined the risk perceptions and connotative meanings of global warming in the American mind and found that Americans perceived climate change as a moderate risk that will predominantly impact geographically and temporally distant people and places. This research also identified several distinct interpretive communities, including naysayers and alarmists, with widely divergent perceptions of climate change risks. Thus, 'dangerous' climate change is a concept contested not only among scientists and policymakers, but among the American public as well."

Lai *et al.* (2005) offer an entirely new hypothesis to explain recent warming of the climate –

> "The impacts of global warming on the environment, economy and society are presently receiving much attention by the international community. However, the extent to which anthropogenic factors are the main cause of global warming, is still being debated. … This research invokes some new concepts: (i) certain biochemical processes which strongly interact with geophysical processes in climate system: (ii) a hypothesis that internal processes in the oceans rather than in the atmosphere are at the center of global warming; (iii) chemical energy stored in biochemical processes call significantly affect ocean dynamics and therefore the climate system.

> Based on those concepts, we propose a new hypothesis for global warming."

Moser (2005) explores the assessment of rising sea levels and in state-level managerial and policy responses to climate change impacts such as sea-level rise in three US states –

> "Uncertainties in the human dimensions of global change deeply affect the assessment and responses to climate change impacts such as sea-level rise."

Shaviv (2006) considers the cosmic-ray forcing posited by Svensmark *et al.* (2006), and concludes that, if the effect is real, natural climate variability rather than anthropogenic enhancement of the greenhouse effect has contributed more than half of the warming over the past century –

> "The cosmic-ray forcing / climate link … implies that the increased solar luminosity and reduced cosmic-ray forcing over the previous century should have contributed a warming of ~0.47K, while the rest should be mainly attributed to anthropogenic causes."

Zhen-Shan and Xian (2007) say that CO_2 forcing contributes less to temperature change than natural climate variability, that the anthropogenic enhancement of the greenhouse effect –

> "could have been excessively exaggerated" … Therefore, if CO_2 concentration remains constant at present, the CO_2 greenhouse effect will be deficient in counterchecking the natural cooling of global climate in the following 20 years. Even though the CO_2 greenhouse effect on global climate change is unsuspicious, it could have been excessively exaggerated. It is high time to re-consider the trend of global climate changes."

Whatever "unanimity" may have been thought or claimed to exist before 2004 in the peer-reviewed literature, there is certainly none in the peer-reviewed journals that have been published since.

Is there a scientific "consensus" wider than that defined by Oreskes?

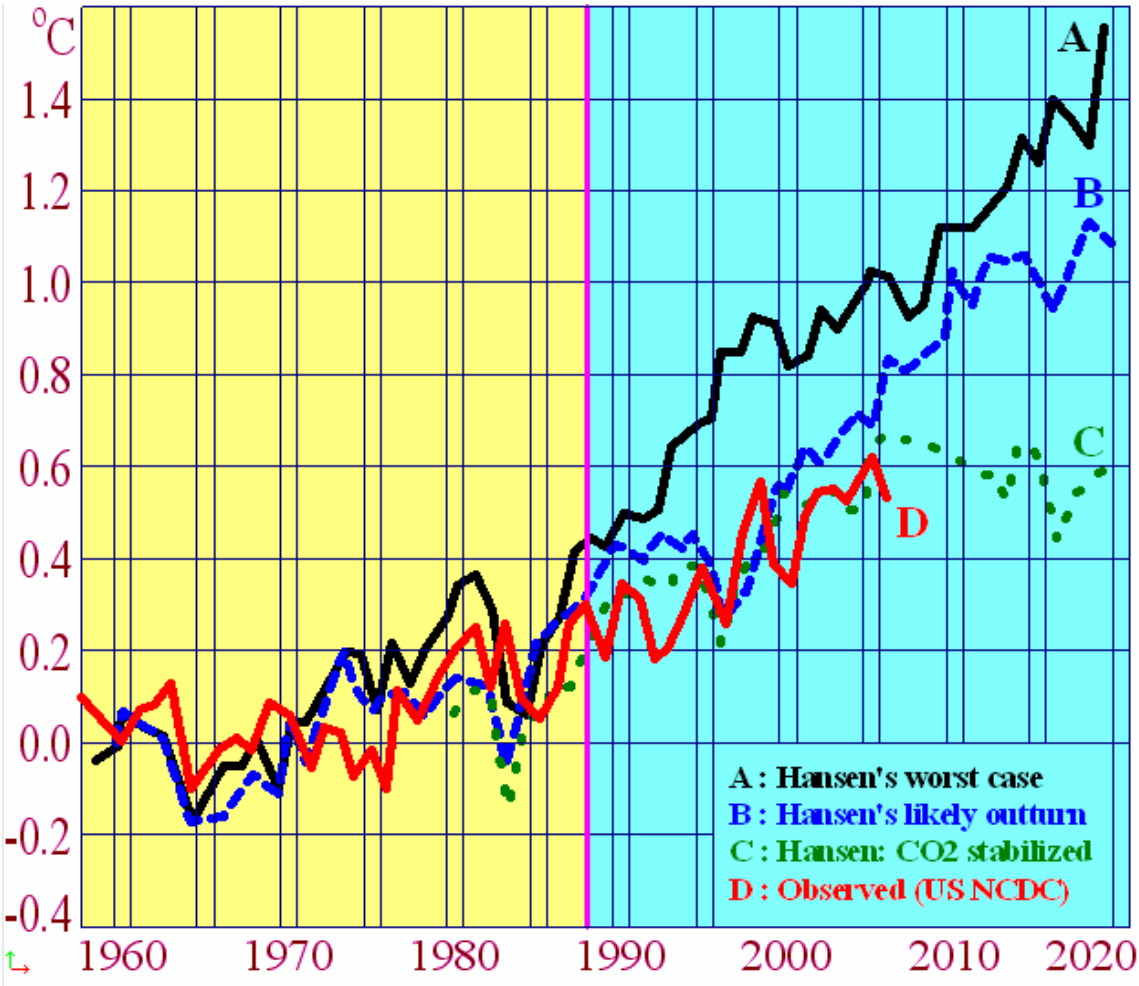
We have established that Oreskes' essay does not really lend any scientific credibility to the panicky predictions of a small minority of scientists many of whom have Left-leaning political opinions or connections.

The outright scaremongers are led by James Hansen, a donor of thousands of dollars to the re-election campaigns of Al Gore and John Kerry. He showed Congress a graph in 1988 that set the trend for wildly-exaggerated projections of future global temperature.

The graph presented three scenarios, the most extreme of which had no basis in the scientific literature or in previously-observed trends.

Politicians at that time treated the graph with respect because it had been generated by a computer. Yet the model which generated the graph, still in use by Hansen and the UN today, continues to contain "flux adjustments" – i.e. fudge-factors – many times greater than the very small perturbations which the model is supposed to predicting.

Hansen's model is discredited by the observed temperatures since 1988 –



Hansen's graph, updated to depict observed temperature to end 2006 overlaid in red, shows that the temperature trend projected by the GISS model used by Hansen is near-identical to that which the model had projected on the assumption that atmospheric CO2 concentrations had been substantially reduced from 1989 onward and stabilized by 2000. On this evidence (and this is the evidence that launched the "global warming" scare), it would be legitimate to conclude that the additional CO2 that has entered the atmosphere since Hansen's graph was published has had no climatic influence whatsoever.

Yet Hansen's computer model, and others very like it, are the chief reason offered by the alarmists for claiming a "consensus" for an extreme version of climate change that even goes so far as to predict the eventual eradication of more than half the world's species (State of the Wild: http://www.giss.nasa.gov/~jhansen/preprints/Wild.070410.pdf).

This broader and more frankly alarmist definition of "consensus" that is presented by Hansen, Al Gore, and the BBC has even less warrant in the peer-reviewed literature than the "consensus" to the effect that humankind has caused most of the slight warming of the past half-century. On this definition of "consensus", we are led to believe that all serious scientists are agreed on the imminence of catastrophe and on the urgent need for, and the likely effectiveness of, costly and extreme mitigative or remedial measures.

It is crucial to appreciate that Oreskes' paper does not lend any scientific credibility to the alarmists' extreme views on climate change. The more honest among them recognize how careful she was to constrain the scope of her definition so that at least it bore some relation, however threadbare, to the peer-reviewed literature that she had analyzed. The alarmists, therefore, now find themselves compelled to fall back upon some additional mantras which, if recited often enough, come to seem true.

"2,500 scientists can't be wrong"

First among these is that the UN's latest report on climate change (IPCC, 2007) was written by 2,500 scientists – and "2,500 scientists can't be wrong". In fact, however, the scientific chapters were contributed by a far smaller number than this. Furthermore, we are now able to offer proof that the UN cannot have obtained the approval of as many as 2,500 scientists to the text before it was published.

The first table of figures that occurs in the UN's *Summary for Policymakers* as first published, Table SPM-0, sets out and quantifies four sources of sea-level change:

The IPCC's incorrectly-summed sea-level table

Officials inserted this table after the scientists had finalized the draft of the 2007 report

Table SPM-0. Observed rate of sea level rise and estimated contributions from different sources. {5.5, Table 5.3} [Numbers to be converted to mm per year]

	Rate of sea level rise (m per century)	
Source of sea level rise	1961 – 2003	1993 – 2003
Thermal expansion	0.042 ± 0.012	0.16 ± 0.05
Glaciers and ice caps	0.050 ± 0.018	0.077 ± 0.022
Greenland ice sheets	0.05 ± 0.12	0.21 ± 0.07
Antarctic ice sheets	0.14 ± 0.41	0.21 ± 0.35
Sum of individual climate contributions to sea level rise	0.11 ± 0.05	0.28 ± 0.07
Observed total sea level rise	0.18 ± 0.05[a]	0.31 ± 0.07[a]
Difference (Observed minus sum of estimated climate contributions)	0.07 ± 0.07	0.03 ± 0.10

Note:
[a] Data prior to 1993 are from tide gauges and after 1993 are from satellite altimetry

This curious table was not in the final draft of the IPCC's 2007 report as approved by the hundreds of scientists who had had a hand in the drafting. UN officials had inserted it after the event, but before publication.

The reason for this furtive last-minute insertion behind the backs of the "2,500 scientists" may have been the revelation by the Science Correspondent of the *Sunday Telegraph,* some weeks before publication of the report, that the UN had drastically reduced its high-end projection of the rise in sea level to 2100, from 3 feet to less than 2 feet.

The fifth row of the table, entitled *Sum of individual climate contributions to sea-level rise,* is the result of an extravagantly incorrect addition:

An intentional error by the IPCC?

Meters per century	**1961-2003**	**1993-2003**
1. Thermosteric expansion	0.042	0.160
2. Glaciers and ice-caps	0.050	0.077
3. Greenland ice-sheets	0.050	0.210
4. Antarctic ice-sheets	0.140	0.210
5. IPCC's sum of lines 1-4:	**0.110**	**0.280**
6. Correct sum of lines 1-4:	**0.282**	**0.657**

How did so incompetent an error arise? Inferentially, the error occurred because the UN, in the version of the 2007 report of its scientific working group which was presented to journalists at its extravagantly-publicized launch, had exaggerated the projected contributions from the Greenland and Antarctic ice-sheets tenfold, by the ingenious expedient of putting the decimal points in the wrong place, four times.

The UN's corrected sea-level table

Observed rate of sea-level rise and estimated contributions from different sources

	Rate of sea level rise (mm per year)	
Source of sea level rise	**1961 – 2003**	**1993 – 2003**
Thermal expansion	0.42 ± 0.12	1.6 ± 0.5
Glaciers and ice caps	0.50 ± 0.18	0.77 ± 0.22
Greenland ice sheet	0.05 ± 0.12	0.21 ± 0.07
Antarctic ice sheet	0.14 ± 0.41	0.21 ± 0.35
Sum of individual climate contributions to sea level rise	1.1 ± 0.5	2.8 ± 0.7
Observed total sea level rise	1.8 ± 0.5[a]	3.1 ± 0.7[a]
Difference (Observed minus sum of estimated climate contributions)	0.7 ± 0.7	0.3 ± 1.0

After protests from the author of the present paper, the UN quietly corrected Table SPM-0, and diverted attention from what they had done by relabeling it Table SPM-1.

By then, of course, the intended damage had been deftly done. Thousands of journalists worldwide had written excitable articles about the impending (though in reality non-existent) acceleration in the rate at which the Greenland and Antarctic ice-caps would melt.

In the final version of the table, units have been changed from metres per century in the previous version to millimetres per year.

Why did the IPCC's 2,500 scientists fail to spot so serious an error? Because the table did not appear at all in the final draft of the *Summary for Policymakers* that the scientists had worked on. This episode demonstrates with great clarity that it is incorrect to assume that all of the 2,500 scientists said to have participated in the IPCC's working groups have even seen, let alone accepted, the final text that has been published in their names.

The UN fails to state that its reduced best estimate of a 30cm sea-level rise (just 1 ft per century) is less than a third of the average centennial rise in sea level since the end of the last Ice Age.

The last-minute list of contributions to sea-level rise does not include an item quantifying the effects on sea level of the extraction of groundwater in all parts of the world.

Morner (2004), the world's foremost expert on sea-level change, has written –

> "There is a total absence of any recent 'acceleration in sea level rise' as often claimed by IPCC and related groups."

Finally, it is worth noting that the UN's brief but, in public-relations terms, ingeniously effective 900% exaggeration of the projected contributions of the Antarctic and Greenland ice-caps to future increases in global sea level is an echo of Al Gore's 12,000% exaggeration of precisely the same topic.

Why? Because, as the BBC knows, pictures of glacial ice collapsing into the sea are a telegenic method of misleading the viewers into believing that the greatest of the imagined threats from "global warming", namely the supposedly imminent 20ft rise in global sea level and the consequent displacement of tens of millions of people, is true when, insofar as there is a "consensus" among climate scientists, that "consensus" is to the effect that there is little danger of a 20ft rise in sea level until several millennia have passed, and that most of the rise in sea level is likely to be natural.

From this episode we know that the "2,500 scientists" who, we are told, approved every word of the politically-charged 2007 UN report on climate change could not have done so.

"All leading scientific bodies are in agreement"

A second mantra that is often recited by the alarmists is to the effect that all leading scientific bodies worldwide are in agreement that urgent action is necessary to prevent catastrophe.

Certainly, political pressure-groups like the US National Academy of Sciences and the Royal Society (one of Britain's oldest taxpayer-funded lobby-groups) have screamed almost as loudly as the alarmist politicians and media. A joint statement by 11 national scientific bodies, including these two, says we need to reduce greenhouse-gas emissions immediately, and spend a great deal more money on scientists, or catastrophe will follow.

However, in such statements as this, there is a curious scarcity of references to specific articles in the peer-reviewed scientific journals. These scientific pressure-groups are unable to point to a scientific consensus on their extremist proposition in the learned journals; for the number of peer-reviewed articles predicting doom is vanishingly small, and nearly all of them are written by the members of a tiny, politically-connected clique.

Of these national scientific pressure-groups, the U.S. National Research Council (an advisory and public policy arm of the National Academy of Sciences) is perhaps the most militantly ridiculous. It is recorded (*Newsweek,* April 28, 1975) as having produced a report 30 years ago alerting the nation to the imagined consequences of global *cooling.* That entertaining report said –

> "A major climatic change would force economic and social adjustments on a worldwide scale, because the global patterns of food production and population that have evolved are implicitly dependent on the climate of the present century."

The National Academy of Sciences has changed its opinion with the weather. Between 1940 and 1975, global temperature had fallen, notwithstanding a continuous and monotonic increase in atmospheric concentrations of carbon dioxide and other greenhouse gases, and notwithstanding an increase in solar activity, suggesting a larger role for the oceans than the UN at present admits.

In response to the supposed threat of "global cooling", the National Academy of Sciences trotted out its report, which, though cautiously expressed as was then the custom, was certainly exciting enough to attract the widespread media attention that such politicized bodies now crave. And we were told, then as now, by media outlets such as the BBC, that global cooling represented the scientific "consensus".

Since 1975, global temperature has risen. The NAS has joined other politicized science bodies round the world to produce another report, this time expressed in alarmist terms and going exotically beyond the "consensus" as defined by Oreskes (2004).

Politicized individuals, as well as groups, have made the transition from cryo-alarmism to thermo-alarmism with seamless disregard for intellectual self-consistency.

One such is the amiable, eccentric British eco-diplomatist, Sir Crispin Charles Cervantes Tickell, who energetically argued for State expansion, intervention, and taxation to address the "problem" of "global cooling" 35 years ago, and today unblushingly argues, no less enthusiastically, for State expansion, intervention, and taxation to address the "problem" of "global warming".

These easy transitions of allegiance to pseudo-scientific hypotheses mask a consistency of allegiance to an explicitly *dirigiste,* anti-free-market, anti-business ideology. Often, when the word "consensus" is prayed in aid by bureaucrats, politicians and scientists talking about "global warming", they do not mean a consensus about the science, but a undeclared "consensus" on the international Left about the political measures which they wish to frighten the world into adopting, regardless of the direction in which the science actually points, and regardless of whether there is a scientific consensus at all.

Conclusion

One has only to cut away the alarmist rhetoric and the media distractions, one has only to focus on the central question in the climate-change debate, and at once the fact that there is no scientific consensus about climate change is laid bare. The central question is this: By how much will global temperature increase in response to any foreseeable increase in the atmospheric concentration of carbon dioxide? On that question, which the bureaucrats call the "climate sensitivity question", there is no

consensus whatsoever among the scientific community. We have seen how Hansen's initial attempt at prediction, albeit using one of the largest computer models of the climate on the planet, turned out to contain an unfortunate element of exaggeration. It is inevitably the extreme scenarios that attract the attention of politicians and the media.

The UN's own attempts to reach "consensus" on the climate sensitivity question demonstrate all too clearly not only that it cannot perform simple additions credibly but also that it does not even agree with itself. The internal inconsistencies in the UN's documents are numerous and growing. We have already seen how it has changed its mind on sea level, as well as performing incorrect addition sums for what appears to have been a political purpose. On the climate sensitivity question, too, the IPCC does not agree with itself. In 2001, it said that the sum of the major climate "forcings" that contribute to temperature change was approximately 2.4 watts per square meter. Now it has decided that the "forcing" from carbon dioxide is largely canceled out by the negative "forcing" from the pollution that accompanies fossil-fuel burning, particularly in China and India, preventing sunlight from reaching the Earth.

Likewise, if one aggrgates up the UN's central estimates of the contributions of all climate "forcings" and temperature "feedbacks" to the projected warming from increased greenhouse gases, the total comes to just half the UN's published central estimate of a 3.2C temperature increase in response to a doubling of the atmospheric CO2 concentration. Once again, a large exaggeration is evident, right at the heart of the alarmist case. If the UN's documents do not even agree with themselves, how can any kind of "consensus" be claimed?

The Russian Academy of Sciences and the US Association of State Climatologists are just two of the scientific organizations that have trenchantly expressed serious doubts about the imagined "consensus" on climate change. They have recently been joined by the Administrator of NASA, who has said that it is arrogant to make the Panglossian assumption that today's climate is the best of all possible climates, and still more arrogant to assume that any of the more or less futile remedial measures which have been advocated will make any significant climatic difference. The Administrator ought to know: for it is his organization that gathers much of the weather data via satellite upon which the rickety edifice of the climate-change "consensus" is constructed.

A growing number of scientists who had previously subscribed to the alarmist presentation of the "consensus" are no longer sure. They are joining the numerous climatologists – many of them with outstanding credentials – who have never believed in the more extreme versions of the alarmist case. Indeed, many scientists now say that there has been no discernible human effect on temperature at all. For instance, Buentgen *et al.* (2006) say: "The 20th-century contribution of anthropogenic greenhouse gases and aerosol remains insecure."

Let the last word go to Mike Hulme, Director of the Tyndall Centre for Climate Change Research in the UK, who has himself undergone something of a *conversio morum* on climate change, and has written:

"The IPCC is not going to talk about tipping points; it's not going to talk about five-meter rises in sea level; it's not going to talk about the next ice age because the Gulf Stream collapses; and it's going to have none of the economics of the Stern Review. It's almost as if a credibility gap has emerged between what the British public thinks and what the international science community think. …

"Over the last few years a new environmental phenomenon has been constructed … - the phenomenon of 'catastrophic' climate change. It seems that mere 'climate change' was not going to be bad enough, and so now it must be 'catastrophic' to be worthy of attention. The increasing use of this pejorative term - and its bedfellow qualifiers 'chaotic', 'irreversible', 'rapid' - has altered the public discourse around climate change.

"This discourse is now characterised by phrases such as 'climate change is worse than we thought', that we are approaching 'irreversible tipping in the Earth's climate', and that we are 'at the point of no return'. I have found myself increasingly chastised by climate change campaigners when my public statements and lectures on climate change have not satisfied their thirst for environmental drama and exaggerated rhetoric. It seems that it is we, the professional climate scientists, who are now the (catastrophe) sceptics. How the wheel turns!"

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