

SCIENTIFIC CONSENSUS ON CLIMATE CHANGE?

*by*

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*Reprinted from*

ENERGY &  
ENVIRONMENT

VOLUME 19 No. 2 2008

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

## SCIENTIFIC CONSENSUS ON CLIMATE CHANGE?

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### ABSTRACT

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, 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, 31 papers (6% of the sample) explicitly or implicitly reject the consensus. Though Oreskes said that 75% of the papers in her former 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.

### 1. INTRODUCTION

Recently, patients alarmed by the tone of media reports and political speeches on climate change have been voicing distress, for fear of the imagined consequences of anthropogenic “global warming”. In my clinical practice patients with benign and malignant disorders are concerned that their disease may be caused by or related to “climate change” and that they might have remained healthy without it. In discussions, they are sometimes specifically distressed that climate change is man-made and that inefficiency or carelessness of policy makers could thus be the origin of their individual suffering.

This experience coincides with the results of a survey based on a random sample in 600 Canadian households by Plotnikoff [1], who showed that Albertans are highly concerned, particularly about health problems related to the environment and air pollution. This prompted me to review the literature available on “climate change and health” via PubMed (<http://www.ncbi.nlm.nih.gov/sites/entrez>). The search identified 787 articles of which 346 related to the issue. Of these, 86 were classified by PubMed as reviews, 92 as under the categories of comment, letter, editorial, news or similar.

Few produced new data substantially demonstrating a scientific relation between climate change and a named health hazard.

However, there were a number of items with highly alarming titles, often specifically referring to Man as source of the feared disaster. For instance, the Lancet published "Climate change - the new bioterrorism" [2] and "Climate change likely to prove deadly, says United Nations report" [3]. The WHO bulletin issued an article which outlines that "human-induced climate change threatens ecosystems and human health on a global scale" [4]. The British Medical Journal has said that "Climate change is likely to affect the health of millions, report warns." [5] and has published an editorial by Stott entitled "What should we do about climate change? Health professionals need to act now, collectively and individually." [6]. Most of the 346 articles on the health impacts of climate change are written by healthcare professionals. Many have adopted the assumption that climate change is a fact and many suppose that it is primarily due to human activities. In the light of the relative scarcity of hard facts about the connections between climate change and specific health hazards it became necessary to examine the underlying hypothesis.

Therefore the question whether there is a unanimous scientific consensus about climate change was investigated by means of a review of the recent peer-reviewed literature, carrying forward the research by Oreskes [7], whose short essay had stated that none of 928 abstracts of papers published between 1993 and 2003 and found on the ISI *Web of Science* database using the search term "global climate change" had rejected the scientific consensus to the effect that -

"Most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations" (IPCC, 2001 [8]).

Oreskes reported that 75% of the 928 abstracts which she reviewed were -

"explicitly or implicitly accepting the consensus view . . . Remarkably, none of the papers disagreed with the consensus position. . . . Politicians, economists, journalists, and others may have the impression of confusion, disagreement, or discord among climate scientists, but that impression is incorrect. . . . The question of what to do about climate change is also still open."

In the present study, Oreskes' research was brought up to date by using the same search term on the same database to identify abstracts of 539 scientific papers published between 2004 and mid-February 2007.

The results show a tripling of the mean annual publication rate for papers using the search term "global climate change", and, at the same time, a significant movement of scientific opinion away from the apparently unanimous consensus which Oreskes had found in the learned journals from 1993 to 2003.

Remarkably, the proportion of papers explicitly or implicitly rejecting the consensus has risen from zero in the period 1993–2003 to almost 6% since 2004. Six papers reject the consensus outright.

Results

Abstracts on ISI Web of Science	Oreskes (2004)	This review	
Period under review:	1993 to 2003 inclusive	2004 to mid-Feb. 2007	
Quantity of documents reviewed:	928	539	
Mean annual publication rate:	84.3 documents.yr <sup>-1</sup>	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%	1.1%	(6 papers)
Explicit or implicit rejection:	0%	6%	(31 papers)
New data or 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)

Cao *et al.* [9] 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 [10] , discussing the conflict between observational science, 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** [11] 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.** [12] 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.”

**Shaviv** [13] continues his former studies [14] on cosmic-ray forcing 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** [15] say that CO<sub>2</sub> forcing contributes less to temperature change than natural climate variability, than the anthropogenic enhancement of the greenhouse effect -

“could have been excessively exaggerated” . . . Therefore, if CO<sub>2</sub> concentration remains constant at present, the CO<sub>2</sub> greenhouse effect will be deficient in counterchecking the natural cooling of global climate in the following 20 years. Even though the CO<sub>2</sub> greenhouse effect on global climate change is unsuspecting, it could have been excessively exaggerated. It is high time to reconsider the trend of global climate changes.”

## 2. DISCUSSION

The analysis of 539 abstracts revealed that only a small part of papers identified through this search mechanism contributed direct relevant data to the question of the consensus as set out above.

Though Oreskes did not state how many of the papers she reviewed explicitly endorsed the consensus that human greenhouse-gas emissions are responsible for more than half of the past 50 years' warming, only 7% of the more recent papers reviewed here were explicit in endorsing the consensus even in the strictly limited sense she had defined.

The proportion of papers that now explicitly or implicitly endorse the consensus has fallen from 75% to 45%.

Only 24% of the papers reviewed are founded upon new data from field research or direct observations related to climate change even in a wider sense. The remainder have no bearing on climate change, or report the results of modeling, or review the literature, or provide commentary only. Only 2% offer new field data or observations directly relevant to the question whether anthropogenic warming has prevailed over natural climatic variability in the past half-century.

None of the 539 papers reviewed offers conclusive new field data or observations providing quantitative evidence for the amplitude of the radiative-forcing or climate-feedback effects of anthropogenic global warming.

By principle, Science does not rise or fall with consensus or its absence, but rather with the reliability of data and vigorous consideration. The prediction of consequences of changes that are only predicted to happen is burdened with serious methodological problems. This inherent degree of uncertainty and the herein shown lack of consensus do not support a further induction of fears of climate related illness and death in the medical world and its patients.

## 3. CONCLUSION

There appears to be little basis in the peer-reviewed scientific literature for the degree of alarm on the issue of man-made climate change which is being expressed in the media and by politicians, now carried over into the medical world and experienced by patients.

## REFERENCES

1. Plotnikoff, R. C., Wright, M. F., and Karunamuni, N., Knowledge, attitudes and behaviours related to climate change in Alberta, Canada: Implications for public health policy and practice. *International Journal of Environmental Health Research*, 2004, 14(3), 223–229.
2. anon, Climate change - the new bioterrorism. *Lancet*, 2002, 359, 2219.

3. Kapp, C., Climate change likely to prove deadly, says United Nations report. *Lancet*, 2001, 357, 696.
4. Martens, W. J., Slooff, R., and Jackson, E., Climate change, human health, and sustainable development. *Bulletin of the World Health Organisation*, 1997, 75(6), 583–588.
5. Watson, R., Climate change is likely to affect the health of millions, report warns. *British Medical Journal*, 2007, 334(7597), 768.
6. Stott, R. and Godlee, F., What should we do about climate change? *British Medical Journal*, 2006, 333(7576), 983–984.
7. Oreskes, N., The scientific consensus on climate change. *Science*, 2004, 306, 1686.
8. IPCC, Climate Change 2001: Impacts, Adaptation and Vulnerability. (Cambridge University Press, Cambridge, 2001).
9. Cao, M. K., Yu, G. R., Liu, J. Y., and Li, K. R., Multi-scale observation and cross-scale mechanistic modeling on terrestrial ecosystem carbon cycle. *Science in China Series D-Earth Sciences*, 2005, 48, 17–32.
10. Gerhard, L. C., Climate change: Conflict of observational science, theory, and politics. *Aapg Bulletin*, 2004, 88(9), 1211–1220.
11. Leiserowitz, A. A., American risk perceptions: Is climate change dangerous? *Risk Analysis*, 2005, 25(6), 1433–1442.
12. Lai, C. C. A., Dietrich, D. E., and Bowman, M. J., Global warming and the mining of oceanic methane hydrate. *Topics in Catalysis*, 2005, 32(3–4), 95–99.
13. Shaviv, N. J., On climate response to changes in the cosmic ray flux and radiative budget. *Journal of Geophysical Research*, 2005, 110(A08105).
14. Shaviv, N. J., in International Seminar on Nuclear War and Planetary Emergencies - 30th Session, edited by R. Ragaini (2004), pp. 47–58.
15. Zhen-Shan, L. and Xian, S., Multi-scale analysis of global temperature changes and trend of a drop in temperature in the next 20 years. *Meteorology and Atmospheric Physics*, 2007, 95(1–2), 115–121.