

In light of these results, it is difficult to think this is a list composed primarily of publishing climate scientists. These results cast serious doubt on the Senate Minority Report's credibility.

Conclusions

We conclude with some general thoughts. The first concerns the nature of science. The second concerns the question of numbers (of scientists) and how they are counted.

Unfortunately, many Americans fail to understand that science does not give us absolutely certain answers to questions about nature. Instead it gives us probabilities. This does not mean, however, that policymakers should feel free to ignore scientific findings. In many cases these probabilities approach certainty. Thus, when scientists say it is "highly likely" that anthropogenic greenhouse gases are the dominant cause of the recent global warming, they are asserting that the observational evidence and scientific theory together make a highly compelling case for this conclusion, such that it cannot be dismissed.

Although it is always possible that some as yet undiscovered mechanism might also play a role, no one has shown convincing evidence for one. As such, unproven claims that other mechanisms explain global warming should be viewed skeptically. When we consider the amount of research that has been accomplished since the seriousness of climate change became apparent two decades ago, the case for the scientific community's consensus view on global warming becomes even stronger.

This leads us to the question of counting numbers of scientists. One sometimes hears that only about one hundred "technocrats" are responsible for the conclusions of the IPCC-2007 Science Report. That statement is patently false. If one reads that report, the number is closer to 2,000 scientists who published on climate science in the refereed literature. Their work was summarized by approximately one hundred "technocrats," with the approval of the relevant science study leaders. Thus, in comparing the IPCC-2007 Science Report and the Senate Minority Report, the proper comparison is between the approximately 137 scientists in the Senate Minority Report (i.e., 20% of 687, constituting individuals who *might* have published in the refereed literature on topics directly related to climate science) and the approximately 2,000 scientists in the IPCC-2007 Science Report. This contrasts dramatically with the ratio of 687 implied climate scientists against approximately 100 "technocrats."

The conclusions we draw from our examination of the Senate Minority Report are preliminary. We have lacked the resources under current time constraints to check every detail in the report, or to contact all of the people who appear on its list. We intend to continue gathering data and will update our analysis accordingly. Nevertheless, based on the procedure described above, we have double-checked our results and are prepared to offer the following three conclusions:

1) *We think it is highly unlikely that a growing fraction of top climate scientists are becoming increasingly skeptical of human causation of global warming.*

2) *We think that the title "Senate Minority Report" is technically appropriate, but grossly understated. That report's list does contain the names of some outstanding scientists, including at least one distinguished meteorologist. However, when weighted against the much larger number of equally outstanding climate scientists, there is no doubt where the great majority of experts in this field stand.*

3) *Absent hard evidence that another likely candidate drives global warming, it is highly unlikely that man-made greenhouse gases do not play a significant and probably a major role in causing global warming. The authors of this Credibility Project assessment are not qualified to assess the engineering and economic questions associated with proposed legislation addressing climate change. However, we are disturbed by any document that may misrepresent the state of the global scientific effort to address this problem.*

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CENTER FOR INQUIRY OFFICE OF PUBLIC POLICY

THE CREDIBILITY PROJECT

An Assessment Of The "U.S. Senate Minority Report:
More Than 650 International Scientists Dissent
Over Man Made Global Warming Claims."

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Background on the Credibility Project

A major political struggle surrounds current efforts to enact legislation addressing the harmful effects of climate change. Opponents of legislation limiting carbon dioxide emissions express doubt about the scientific evidence for global warming. Since the issuance of the Intergovernmental Panel on Climate Change Science Report in 2007 (The Physical Science Report, hereafter referred to as the “IPCC-2007 Science Report”), many legislators have concluded correctly that the relevant science is settled. A vocal minority, however, continues to insist otherwise.

Lawmakers opposed to legislation needed to slow global climate change have hailed the recently published United States Senate Minority Report on Global Warming (accessible at <http://epw.senate.gov>) as proof of division within the scientific community. In that report, almost 700 individuals with implied scientific credentials are offered as evidence that measures to address climate change are premature, and that further research on the cause of global warming is needed. The Center for Inquiry’s Office of Public Policy deemed it well worthwhile to assess the claims of the Senate Minority Report, and has examined it carefully. Clearly, if the report is scientifically credible and its case is strong, this would have significant implications for efforts to control the emissions the IPCC-2007 Science Report identifies as the “highly likely” cause of global warming.

We dubbed our effort to assess the Senate Minority Report “The Credibility Project.”

Highlights in Contemporary Climate Science

The existing scientific evidence on the cause and extent of climate change casts serious doubt on the Senate minority position on global warming.

The term “global warming” as used by the scientific community refers to the alarmingly rapid warming that has occurred over the past three decades. This warming has been established beyond all doubt by observations carefully analyzed by a large and competent climate science community.

Climate scientists have already investigated a number of possible causes for global warming. Their exacting investigations have identified anthropogenic greenhouse gases, led by carbon dioxide, as the only plausible major contributor to global warming. Although the evidence for this conclusion is too detailed and voluminous to present here, it is outlined in both the IPCC-2007 Science Report and in a succinct, but well documented reference by one of the authors of this brochure (see the two articles and two subsequent responses by S. Jordan in the four issues of *Skeptical Inquirer*, Vol. 31, Nos. 3-6, 2007).

Deniers of global warming often cite the occurrence of a temporary cool period since 2005 (cool only in relation to the extremely hot years before) as reason to doubt the science of global warming. Far from defying scientists’ expectations, this cool period was predicted by the best climate models before it occurred. This shows that climate models have passed a critical test of physi-

cal theories – namely, that they have demonstrable predictive power. Worryingly, these same models predict that another very sharp temperature rise will occur in a few more years.

Claims that the sun is responsible for global warming have all failed observational tests to date. Proposed solar interplanetary magnetic fields and variations in solar ultraviolet radiation, both solar-cycle dependent, fail for many reasons. When one includes the effects of volcanic aerosols and even allows for possible phase shifts in the Earth’s response, there is no correlation between global warming and the solar cycle. Careful observations of the solar irradiance at the outer reaches of Earth’s atmosphere rule out changes in this parameter that might account for global warming. To date, no observationally-grounded argument has demonstrated that some “driver” other than anthropogenic greenhouse gases is a major contributor to global warming. In contrast, the harmful effect of anthropogenic greenhouse gas is confirmed by an enormous database and by all major climate models worldwide.

Finally, since the publication of the IPCC-2007 Science Report, many scientists have argued that the Earth’s climate could change even *more rapidly* than previously expected. NASA scientist R. Bindshadler, a recognized authority on the melting of the Greenland and Antarctic icecaps, has analyzed observational data obtained over the last decade. His analysis shows that the rate of melting may be much larger than the earlier value reported in the IPCC-2007 Science Report. Should this faster melting rate persist, the average sea-level rise over the 21st century would be of the order of one meter, not one foot as predicted in the IPCC Science Report. While it is too early to conclude that this high melting rate will persist, this danger cannot be ignored. If the higher melting rate should continue, the subsequent sea-level rise would constitute a major global environmental disaster, with ominous social and political consequences.

For the reasons stated above, many scientists are skeptical when politicians claim that a large body of scientists doubts that human activity causes global warming. That claim runs contrary to the evidence and the work of a large climate-science community.

Results of the Credibility Project

The Senate Minority Report lists 687 individuals with purported climate science credentials as skeptics of the scientific consensus on global warming. We assessed the credibility of the Senate Minority Report primarily by determining what fraction of these individuals could reasonably be considered to be active climate scientists, or scientists working in related fields. The best measure for this, almost universally agreed to in the scientific community, is to determine if these individuals publish articles on subjects somewhat related to climate science in refereed journals. Additional criteria were invoked, including attempts to determine the professional fields of the individuals on the list, as well as education degrees received. The data set we relied upon is accessible on the Credibility Project’s provisional website, www.centerforinquiry.net/opp/credibilityproject.

Such a process is liable to small errors of interpretation. Nevertheless, after double-checking our assessment and following this procedure using the best available data, several striking results emerged.

The great majority of the 687 “Prominent Scientists” cited in the Senate Minority Report are not Published Climate Scientists

Found no peer-reviewed publication record related to climate science	 80.20%
Work in a field related to climate science	 34.93%
meteorologists	 21.83%
Found a definite peer-reviewed publication record related to climate science	 14.12%
Not scientists and not climate change skeptics	 9.46%
No evidence of being scientist	 8.01%
No outside confirmation of skepticism	 7.42%
Appear NOT to be climate change skeptics	 3.35%

Note that the percentages add up to well over 100%. This is because there is overlap among the categories. Examining the titles of the different categories should make this clear.

The results of our assessment are summarized as follows:

Based on publications in the refereed literature, **only approximately 10% of the 687 individuals could be identified definitively as climate scientists. Only approximately 15% could be identified as publishing in fields related to climate science.** Examples include solar physicists studying solar irradiance variation.

For approximately 80% of these individuals, no evidence could be found that they had published research remotely related to climate science. Examples include purported meteorologists - the largest professional field found – who have no refereed scientific publications and whose job is merely to report the weather forecast.

Almost 4% have made statements suggesting they largely accept the scientific community’s consensus view that global warming is occurring and that greenhouse gases appear to be a significant cause. (This is a tentative approximation, because these same individuals may have made other statements elsewhere. This nonetheless raises the question whether they should have been included on the Senate Minority Report’s list in the first place.)