Global Warming, Fact or Fiction?

by Joseph Bast with Introduction and emphasis by Life Research Institute

Introduction

One reason for the alleged need to control world population is alleged global warming. That is, if there is global warming caused by people, one way to control it is through having fewer people. However if there isn't, there is far less reason to control population. This document shows that the belief that we will have global warming is based on false science and gross exaggeration.

If you feel that you have no way of correctly judging between what you'll read here and what you've been told, then believe satellite data and more than 17,000 scientists who disagree that temperatures are rising or probably will rise.

Global-Warming Facts

In 1997, representatives of the United States and other nations met in Kyoto, Japan, to negotiate a treaty to address the possible threat of global climate change. That treaty, called the Kyoto Protocol, would require the U.S. to reduce its greenhouse gas emissions -- primarily carbon dioxide (CO_2), methane (CH_4), and nitrous oxide ($N0_2$) -- to 7 percent below 1990 levels by the year 2012.[1]

Five Things You Should Know--and this paper will show--About Global Warming

1. Most scientists do not believe human activities threaten to disrupt the Earth's climate.
2. The most reliable temperature data show no global warming trend.
3. General circulation models are too crude to predict future climate changes.
4. The Intergovernmental Panel on Climate Change (IPCC) did not prove that human activities are causing global warming.
5. A modest amount of global warming, should it occur, would be beneficial to the natural world and to human civilization.

1. Most scientists do not believe human activities threaten to disrupt the Earth's climate.

Over 17,000 scientists have signed a petition saying, in part, "there is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate."[2]

The petition was circulated by the Oregon Institute of Science and Medicine**, an independent research organization that receives no funding from industry.**

Among the signers of the petition are over 2,100 physicists, geophysicists, climatologists, meteorologists, and environmental scientists who are especially well qualified to evaluate the effects of carbon dioxide on the Earth's atmosphere. Another 4,400 signers are scientists qualified to comment on carbon dioxide's effects on plant and animal life. Nearly all of the signers have some sort of advanced technical training.

The Oregon Institute Petition -- ***Signed by over 17,000 scientists***

"We urge the United States government to reject the global warming agreement that was written in Kyoto, Japan in December 1997, and any other similar proposals. The proposed limits on greenhouse gases would harm the environment, hinder the advance of science and technology, and damage the health and welfare of mankind.

There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth."

The qualifications of the 17,000+ signers of the Oregon Institute Petition are dramatically better than the qualifications of the 2,600 "scientists" who have signed a competing petition, circulated by Ozone Action, calling for immediate action to counter global warming. An investigation by Citizens for a Sound Economy found that more than 90 percent of that petition's signers lacked credentials to speak with authority on the issue.[3] **The entire list included just one climatologist.**

Over one hundred climate scientists signed the 1996 Leipzig Declaration, which stated in part, "there does not exist today a general scientific consensus about the importance of greenhouse warming from rising levels of carbon dioxide. **On the contrary, most scientists now accept the fact that actual observations from Earth satellites show no climate warming whatsoever."[4]**

A survey of 36 state climatologists--scientists retained by state governments to monitor and research climate issues--conducted in September and October 1997 found that 58 percent disagreed with the statement, "global warming is for real," while only 36 percent agreed.[5] **A remarkable 89 percent agreed that "current science is unable to isolate and measure variations in global temperatures caused only by man-made factors."**

Global warming alarmists have sought to silence their critics by calling them a small group of industry-funded dissenters from the "scientific consensus."[6] The Oregon Institute Petition, the Leipzig Declaration, and the survey of practicing climatologists prove these claims are false. We should keep in mind, however, that scientific truths are not found by polling scientists, but through rigorous debate recorded in peer-reviewed journals. As the following points show, global warming skeptics can win that debate, too.

2. The most reliable temperature data show no global warming trend.

It is an article of faith among those who warn of catastrophic global warming that temperatures are already rising. They point to surface-based measurements produced by the National Oceanic and Atmospheric Administration to declare 1997 the warmest year on record.[7] But U.S. weather satellites and radiosonde (weather) balloons rank 1997 as the seventh coolest year since satellite measurements began in 1978.[8]

Modern surface-based temperature records began in 1880. Although useful for compiling regional data, such measurements are too few in number and too unevenly spaced to generate global temperature maps that are useful. Only 30 percent of the world's surface is land, so land-based temperature measurements account for less than one-third of the Earth's climate. Arctic and oceanic temperatures are under-represented. Data collected outside of the United States and Europe are poorly distributed. Urban stations, which are influenced by city heat anomalies, are over-represented; deserts, mountains, and forests are

under-represented. The result is a set of measurements that understate some global trends and overstate others.

The global temperature record produced from satellite data has none of the problems faced by surface-based thermometers. Orbiting satellites cover 99 percent of the Earth's surface, not less than a third, and measure a layer of the troposphere that is unaffected by urban heat islands. Moreover, satellite data agree almost exactly with those recorded by weather balloons, even though the latter use different technology.[9] While the satellite record extends back only to 1979, weather balloon data go back 38 years [from 1998] to 1960.

"A look at the trends in the satellite data--our only truly global record of lower atmosphere temperature--is remarkably revealing," said Virginia State Climatologist Dr. Patrick J. Michaels in testimony before Congress.[10] **"There is a statistically significant global cooling trend over the entire 18.8 year period."** After Michaels testified, El Niño (a recurring weather phenomenon not caused by global warming) raised global temperatures in 1997 and 1998, so the 19-year record now shows neither a warming nor a cooling trend.

Dr. Roy Spencer, a meteorologist and team leader of the NASA/Marshall Space Flight Center, says **"the temperatures we measure from space are actually on a very slight downward trend since 1979 . . .** the trend is about 0.05 degrees Celsius per decade cooling."[11]

Dr. Vincent Gray, a New Zealand scientist and member of the peer review board of the Intergovernmental Panel on Climate Change, writes: **"There is no evidence of a global warming trend over the past 37 years if the radiosonde [weather balloon] measurements are considered, or over 18 years if the satellite measurements only are considered."**[12]

Dr. Robert Balling, Director of the Office of Climatology at Arizona State University, summarizes the temperature data of the past two decades as follows**: "The trend is statistically significant, and it's downward. . . . Two of the three methods we use to measure planetary temperature show cooling, and one shows nothing at all. . . ."**[13]

It is sometimes argued that satellites measure temperatures too far above the surface to be said to contradict the record of surface-based weather stations. The Intergovernmental Panel on Climate Change strongly rejected this notion in its 1990 report.[18]

3. General circulation models are too crude to predict future climate changes.

> The ability to explain historical data is a critical test for any theory or model. General circulation models flunk that test.

[Explaining historical data means this: Look back at actual data, say temperatures for 1980 - 1990. Use temperatures for 1950 - 1979 as input for your general circulation model. See if the model accurately predicts what happened in 1980 - 1990. The general circulation models flunked that test.]

Predictions that rising concentrations of carbon dioxide in the atmosphere will cause global climate change are based on general circulation models (GCMs), complex computer programs that attempt to simulate the Earth's atmosphere. GCMs were created to help scientists learn more about atmospheric physics, not to predict future climates.[15] When put to such an unintended use, they are unreliable. For example:

- GCMs are unable to replicate past climate trends. While global temperatures have risen between 0.3 and 0.6 degrees Celsius over the past one hundred years, computer models predict that global temperatures should have gone up between 0.7 and 1.4 degrees by 1990. The two ranges do not even overlap.[16] The ability to explain historical data is a critical test for any theory or computer model. GCMs flunk that test.

- GCMs use "fudge factors" that are larger than the variables they are supposed to be measuring. In order to get their models to produce predictions that are close to their designers' [pre-decided] expectations, modelers resort to "flux adjustments" that can **be 25 times larger than the effect of doubling carbon dioxide concentrations**.[17] [Allow a non-scientific example of how this works: You have two sons. The older should have needed to start shaving at age 18 but didn't need to start till age 20. Your other son is 10, so you redefine his age as 12 so that he will start shaving on time. This is analogous to what the model designers did.]

- Dr. Richard Lindzen, a meteorologist at MIT, notes that "one cannot even calculate the temperature of the Earth without models that accurately reproduce the motions of the atmosphere," yet "present models have large errors here--on the order of 50 percent."[18] Richard A. Kerr, a writer for Science, says "climate modelers have been 'cheating' for so long it's almost become respectable."[19]

- GCMs inaccurately model the effects of clouds. Most climate models assume that clouds absorb roughly 3 percent of the sun's radiation, but more recent estimates, published in Science in 1995,[20] indicate that the absorption rate may be closer to 19 percent. This means past predictions were based on data that "**were off by more than 600 percent**."[21]

- GCMs do not take into account fluctuations in solar energy. Scientists can only estimate the amount of solar energy that enters the Earth's atmosphere (an amount called the "solar constant") as well as the amount of sunlight reflected back into space by the Earth's surface and atmosphere (called the "reflectivity of the Earth"). Estimates for these values vary considerably over time, and some experts believe natural variations are closely related to changes in climate.[22]

- GCMs are only as good as the data fed into them. The GCMs used by the Intergovernmental Panel on Climate Change were programmed to assume an increase in greenhouse gas concentrations of 1 percent per year, even though the historical data show an annual increase of only 0.3 to 0.4 percent. Population growth and coal production figures were similarly exaggerated. After correcting for these and other errors, Dr. Vincent Gray **concludes "we can expect the maximum temperature rise between 1900 and 2100 to be 1C."[23]** [That's a 100-year interval!] (Emphasis in the original.) Other scientists report similar results when the GCMs are run with accurate data.[24]

General circulation models have become more complex over time, but this doesn't mean they are becoming more accurate. Richard Kerr quotes an anonymous senior climate modeler as saying "the more you learn, the more you understand that you don't understand very much."[25] **Kerr reports that "most modelers now agree that the climate models will not be able to link greenhouse warming unambiguously to human actions for a decade or more."[26]**

4. The IPCC did not prove that human activities are causing global warming.

The IPCC [Intergovernmental Panel on Climate Change] was created by the United Nations to act as a source of scientific advice on global warming. Its latest assessment, Climate Change 1995, predicts, but

does not prove, a global temperature increase of between 0.9 C and 3.5 C by the year 2100, with a "best estimate" of 2.0 C.[27]

> "I have never witnessed a more disturbing corruption of the peer-review process than the events that led to this IPCC report." *Dr. Frederick Seitz*

[This is a valid peer-review process: You do your research and writing, qualified scientists review both, then you submit your findings if the peers don't have valid criticism.]

Climate Change 1995 is the source of perhaps the most often quoted sentence in the global warming debate: "[T]he balance of evidence suggests a discernible human influence on the global climate."[28] Upon this slender reed is hung the claim of a "scientific consensus" on the need to "stop global warming." Yet, how meaningful is this sentence?

"Balance of evidence" is a phrase used by scientists **when evidence of a cause-and-effect relationship is unavailable. It is an admission that genuine proof is not possible.** The word "suggests" indicates that different people looking at the same data can disagree on their meaning. And "discernible" means detectable but by no means large or significant. **It certainly does not mean "major," "troubling," or even "bad."**

Climate Change 1995 is controversial for a second reason: **Many revisions to the report were made after peer review was completed.** Dr. Frederick Seitz, president emeritus of Rockefeller University and past president of the National Academy of Sciences, has publicly denounced the published document, writing "I have never witnessed a more disturbing corruption of the peer-review process than the events that led to this IPCC report."[29] Dr. Vincent Gray has written that the final version of the IPCC report he saw as a **reviewer did not claim to have found "a discernible human influence on the global climate,"** but instead ended with the following words:

When will an anthropogenic effect [an effect caused or produced by humans] on the climate be identified? The best answer is "we do not know."[30]

There is still more evidence that the **scientists who wrote the IPCC report did not believe they had proven that man-made emissions were influencing the global climate**. Dr. Benjamin Santer, the lead author of the science chapter of the IPCC report, co-authored an article on the same subject for a peer-reviewed scientific journal around the same time as the IPCC report was written. In that essay, Santer et al. say it is not possible to get the general circulation models to replicate the past climate record, and until this is resolved, "it will be hard to say, with confidence, that an anthropogenic climate signal has or has not been detected."[31]

> "The climate issue is not 'settled'; it is both uncertain and incomplete." --Dr. Bert Bolin *Chairman, IPCC*

5. A modest amount of global warming, should it occur, would be beneficial to the natural world and to human civilization.

[Even though some measurements indicate a cooling trend, . . .] Because so little is known about how the atmosphere functions, it is impossible to rule out the possibility that man-made greenhouse gases might

cause some amount of warming (or cooling). Would some degree of warming be bad for most societies and natural environments? Probably not.

The small amount of warming that occurred during the past century consisted primarily of increased minimum temperatures at night and during winters.[32] This means higher average temperatures, should they occur, would not result in more daytime evaporation, which some claim would lead to droughts and desertification. [Almost all evaporation occurs in the daytime.] Warmer winters would mean longer growing seasons and less stress on most plants and wildlife, a substantial benefit for the global ecosystem. Finally, past warming has been accompanied by increased cloudiness, a phenomenon also predicted by most global climate models. This means a warmer world would probably be a wetter world, which once again is beneficial to most plant and animal life.[33]

The latest research suggests that sea levels would decline, not rise, if temperatures rise due to increased evaporation from the oceans.[34] Increasing polar temperatures by a few degrees would not cause ice or snow to melt because the original temperatures are so low the new temperatures would still be well below freezing. However, the slightly warmer air would be able to retain more moisture, meaning more snowfall in polar regions and more, not less, water locked up in snow and ice.[35]

Endnotes

1. The full text of the Kyoto Protocol is available in Adobe Acrabat's portable document format (PDF) on the Internet at www.unfccc.de/fccc/conv/file01.htm.
2. The names of persons who have signed the petition can be viewed at http://www.oism.org/pproject. See also "15,000 Scientists Urge Congress to Reject Kyoto Global Warming Treaty," Environment News, Vol. 1, No. 9, May 1998, pages 1, 5.
3. Citizens for a Sound Economy, "Analyses Finds Only 10% of Ozone Action 2600 are 'Experts' on Global Warming," news release, October 29, 1997.
4. Dr. S. Fred Singer, Hot Talk, Cold Science: Global Warming's Unfinished Debate (Oakland, CA: The Independent Institute, 1997), pages 40-43.
5. American Viewpoint, "Survey of State & Regional Climatologists, September-October 1997, Annotated Questionnaire," October 1997, http://www.cse.org/cse/surveyenviroreg100897.htm.
6. Ross Gelbspan, The Heat is On: The High Stakes Battle Over Earth's Threatened Climate (New York, NY: Addison-Wesley Publishing Company, 1997).
7. Paul Georgia, "The Warmest Year on Record?" CEI Update, February 1998. Available at www.cei.org/update/1998/0298-pg.html.
8. Ibid. See also Dr. Roy Spencer, "Truth and Consequences: In Defense of the Satellite Data," in Dr. Patrick J. Michaels, ed., State of the Climate Report 1998, New Hope Environmental Services, Inc.
9. Dr. Patrick Michaels, "New Independent Measure Verifies Satellite Accuracy," World Climate Report, July 13, 1998, pages 1-2.
10. Dr. Patrick Michaels, "The Effects of Proposals for Greenhouse Gas Emission Reduction." Testimony before the Subcommittee on Energy and Environment of the Committee on Science, U.S. House of Representatives. November 6, 1997.
11. NASA/Marshall Space Flight Center Web site, February 6, 1997.
12. Dr. Vincent Gray, "Climate Change 95: An Appraisal." Heartland Policy Study (Chicago, IL: The Heartland Institute, September 10, 1997).
13. Dr. Robert Balling Jr., Briefing on Global Warming. Sponsored by the Competitive Enterprise Institute and the National Center for Policy Analysis, June 13, 1997.
14. IPCC, Climate Change: The IPCC Scientific Assessment, 1990 (1993), page 49. See also page 251.The IPCC's Climate Change 1995 report was published in three volumes, each representing the report of a different Working Group: Working Group 1, The Science of Climate Change; Working Group 2, Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses; and Working Group 3, Economic and Social Dimensions of Climate Change. The report was published by Cambridge University Press, Port Chester, New York, in 1996. For ordering information, call 1-800-872-7423.
15. "General Circulation Model outputs should be treated, at best, as broad-scale sets of possible future climatic conditions and should not be regarded as predictions." IPCC, Climate Change 1995, Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses, page 803.
16. Dr. Hugh W. Ellsaesser, "The Misuse of Science in Environmental Management," Heartland Policy Study (Chicago, IL: The Heartland Institute: December 8, 1995), page 20.
17. Dr. Sally Baliunas, "Uncertainties in Climate Modeling: Solar Variability and Other Factors," testimony before the Committee on Energy and Natural Resources of the U.S. Senate, 1996.
18. Dr. Richard Lindzen, "Global Warming: The Origin and Nature of the Alleged Scientific Consensus," Regulation: The Cato Review of Business and Government, Spring 1992.
19. Richard A. Kerr, "Greenhouse Forecasting Still Cloudy," Science, May 16, 1997, page 1041.
20. P. Pilewskie and P. F. J. Valero, "Direct Observations of Excess Solar Absorption by Clouds," Science, 267 (1995), pages 1626-1629.
21. Dr. Patrick Michaels, "Watts Wrong With the Models: How New Observations Invalidate Earlier Forecasts," World Climate Report, December 4, 1995, page 1.
22. Dr. Robert Jastrow, Dr. William Nierenberg, and Dr. Frederick Seitz, Scientific Perspectives on the Greenhouse Problem (Washington, DC: The George C. Marshall Institute, 1990), pages 49-59.
23. Dr. Vincent Gray, supra note 16.
24. See T. M. I. Wigley, R. Richels, and J. A. Edmond, "Economic Choices in the Stabilization of Atmospheric CO2 Concentrations, Nature 379 (1996), pages 240-243; Dr. Patrick Michaels, "The Threat Is Over," World Climate Review, June 9, 1997, page 2.
25. Richard A. Kerr, supra note 23, page 1040.
26. Ibid.
27. IPCC, Climate Change 1995, The Science of Climate Change, page 39.
28. Ibid., page 39. This sentence appears in the Technical summary of the report. The discussion in the body of the report, on page 439, is loaded with qualifications that make the sentence even less persuasive. The authors admit that their conclusion is "subjective," and refer to their findings as "an initial step . . . in the direction of attribution."
29. Dr. Frederick Seitz, "A Major Deception on 'Global Warming'," The Wall Street Journal, June 12, 1996.
30. Dr. Vincent Gray, supra note 16, page 21.
31. T. P. Barnett, B. D. Santer, P.J. Jones, R. S. Bradley, and K. R. Briffa, "Estimates of Low Frequency Natural Variation in Near-surface Air Temperature," The Holocene 6 (1996), pages 255-256.
32. IPCC, Climate Change 95, The Science of Climate Change, pages 27 325-327, and 437. See also P. J. Michaels and D. E. Stooksbury, "Global Warming: A Reduced Threat?" Bulletin of the American Meteorological Society, Vol. 73 (1992), pages 1563-1577.
33. Dr. Robert C. Balling, Jr., "Global Warming: Messy Models, Decent Data, Pointless Policy," Competitive Enterprise Institute, November 1994, pages 13-14.
34. Dr. S. Fred Singer, supra note 8. See also H. Sterling Burnett, "Myths of Global Warming," Brief Analysis, National Center for Policy Analysis, May 23, 1997.
35. K. W. Nicholls, "Predicted Reduction in Basal Melt Rates of an Antarctic Ice Shelf in a Warmer Climate," Nature, Vol. 388, July 31, 1997, pages 460-461.

Author Joseph L. Bast is president and CEO of The Heartland Institute, a nonprofit research organization based in Chicago, Illinois. He is the coauthor of Eco-Sanity: A Common-Sense Guide to Environmentalism (Lanham, MD: Madison Books, 1994 [second edition 1996]). He can be reached by e-mail at jbast@heartland.org.

"The Questionable Science Behind the Global Warming Scare," a longer version of this essay, is available at http://www.hearland.org/studies/gwscience.htm."