

GLOBAL WARMING

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America and other nations need some blunt talk about global warming. Essentially every knowledgeable scientist now agrees that global warming is probably here now, and will almost certainly have serious and possibly damaging effects during the next century, yet our politics and our news media nearly ignore the entire issue. It is as though a man's home was obviously on fire and yet the owner was relaxing in the living room, taking no action, because the fire had not yet reached his sofa.

A few reality checks: Earth has already warmed by 0.8 °C during this century.¹ It is likely that the 1990s have been the warmest decade of the past one thousand years.² Global warming is raising the probability of weather extremes, creating hurricanes, rainstorms, and droughts that are especially intense. Examples include the Yangtze River flooding of 1998, the Red River valley flooding in the Dakotas in 1997, the Upper Mississippi Basin flooding in 1993, the droughts and fires in Indonesia, Brazil, Mexico, and Florida during 1997-98, and hurricanes Mitch and Floyd.³

A significant new finding has been added to this dreary mix: The floating sea ice associated with the Arctic ice cap, covering an area as large as the United States, is melting rapidly and is in danger of melting completely in only a few decades. There is little doubt (specifically, an 0.1 percent doubt) about the cause: human-caused global climate change. This melting will seriously alter Earth's reflectivity, converting the Arctic Ocean from a brilliantly white reflector sending 80% of solar energy back into space into a heat collector absorbing 80% of incident sunlight "with drastic climate implications for the Northern Hemisphere."⁴

I had the good fortune to attend the February 2000 Washington DC conference of the American Association for the Advancement of Science, sometimes said to be the world's largest scientific organization. During the 6-day meeting, I attended five 3-hour panel discussions of various aspects of climate change, featuring about 30 of the nation's best climate scientists. Every panel simply acknowledged the fact of human-caused global warming without further discussion, and addressed the issues of what will be the impacts and what might we do about it. It was apparent to me that knowledgeable scientists take global warming very seriously, and that a consensus has developed supporting the reality of human-caused climate change.

There is some good news: The notorious pro-fossil-fuel lobbying and propaganda organization known as the Global Climate Coalition (GCC) is falling apart. Several Fortune 500 companies, including British Petroleum, Shell Oil, and Dow Chemical, have recently dropped out of the GCC. And just a few days ago Ford Motor Company announced that it also is quitting the GCC, stating that "credible evidence of global warming exists and companies should work together to find technological solutions."⁵

Effective remedial action is not yet even being discussed. A 50-80% reduction in carbon emissions is needed,⁶ yet emissions continue growing. The emissions reductions called for by the 1997 Kyoto global warming agreement are so small as to be practically meaningless.⁷ Several Senators, including my own state's Tim Hutchinson, are cosponsoring a bill to actually weaken the Kyoto agreement, exactly the opposite of what needs to be done.⁸ Serious action means massive reductions in our fossil fuel use, primarily coal-burning electric generating plants and motor vehicles.

The house is burning down, folks. It's time to get up from the sofa and put out the fire.

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1. The earlier figure of 0.5 °C needs to be revised upward. See Kevin Trenberth, "The extreme weather events of 1997 and 1998," *Consequences*, Volume 5, Number 1 (1999), pp. 2-15. Also Thomas Karl and Kevin Trenberth, "The Human Impact on Climate," *Scientific American*, December 1999, pp. 100-105.
 2. Environmental Defense Fund, "Global warming: Projections for the new millennium," 3 December 1999, available at www.edf.org. Also see Reuters News Service report, 3 March 1999.
 3. See Trenberth, ref. 1.
 4. *Science* 3 December 1999, p. 1828, pp. 1934-1937, pp. 1937-1939. Also Barbara Levi, *Physics Today*, January 2000, p. 19. Also the Associated Press report, dated 3 December 1999.
 5. Associated Press report, 7 December 1999.
 6. U. S. Congress, Office of Technology Assessment, *Changing by Degrees*, 1991, p. 4.
 7. *Science* 19 December 1997, p. 2048.
 8. Union of Concerned Scientists report, "Climate Change Legislation," 14 June 1999.