

American Meteorological Society's Environmental Science Seminar Series

"The Science of Global Warming: How do We Know We're Not Wrong?"

How can the public be assured that the scientific consensus on global warming and its causation is not wrong, given previous concerns regarding global cooling and theories such as continental drift? Are there tests of such scientific assertions and theories that can serve to reassure our confidence in their correctness?

Public Invited*

**Tuesday, June 22, 2007
12:00 Noon - 2:00 pm
Dirksen Senate Office Building, Room G-50
Washington, DC**

Buffet Reception Following

Moderator:

Dr. Anthony Socci, Senior Science Fellow, American Meteorological Society

Speaker:

Dr. Naomi Oreskes, Professor of History and Science Studies at the University of California, San Diego, CA

Program Summary

Scientists have been studying the potential effect of greenhouse gases on Earth's climate for more than half a century. As early as the mid-1960s, they warned political leaders that significant adverse consequences could ensue, and in 1979 a committee of the U.S. National Academy of Sciences chaired by MIT meteorologist Jule Charney predicted that the effects of anthropogenic warming would be discernible by the end of the 20th century.

These predictions have come true. There is broad consensus among active climate researchers that global warming is indeed discernible, and its primary causes are discernible, too: human activities including deforestation and greenhouse gas emissions.

Yet some individuals (although mostly not scientists) challenge the scientific evidence. One type of challenge is to suggest that because scientists were mistaken in the past for example, about the absolute nature of time and space, or the stability of continents or in their support for eugenics programs there is no reason to accept what they have to say now.

Many of the individuals who have challenged climate science are clearly not objective: some have documented links to the fossil fuel industry; others have a history of acting as career skeptics having previously challenged scientific evidence related to acid rain, ozone depletion, and environmental tobacco smoke. Nevertheless, it is a fair question: how do we know we're not wrong?

Historians and philosophers of science have amply documented the fallibility of past science, and it therefore behooves us to take seriously the possibility that our present science may turn out to be incomplete or even incorrect. Yet, history and philosophy of science also provide guidance for evaluating climate science and judging its quality. When we apply the lessons of history, we find that climate science passes a diversity of tests.

History and philosophy also suggest how we can proceed with informed public policy even while acknowledging scientific fallibility.

Biography

Dr. Naomi Oreskes is Professor of History and Science Studies at the University of California, San Diego. Her research focuses on the historical development of scientific knowledge, methods, and practices in the earth and environmental sciences. She is the author of *The Rejection of Continental Drift: Theory and Method in American Earth Science*, and editor of *Plate Tectonics: An Insider's History of the Modern Theory of the Earth*, cited by *Library Journal* as one of the best science and technology books of 2002, and by *Choice* as an outstanding academic title of 2003. She has also authored roughly 30 or so scholarly peer-reviewed papers in scientific journals and monographs, and in science history and history journals. She has also presented over 100 invited lectures.

Dr. Oreskes received her Bachelor of Science degree in Mining Geology at

The Royal School of Mines, Imperial College, University of London, UK, and her Ph.D. in Geological Research and History of Science at Stanford University, Stanford, CA.

Dr. Oreskes' current research deals with the science of climate change. Her 2004 essay in *Science* entitled *The Scientific Consensus on Climate Change*, led to Op-Ed pieces in the *Washington Post*, *San Francisco Chronicle*, and *Los Angeles Times*, and has been widely cited in such publication as *The New Yorker*, *USA Today*, the Royal Society's publication, *A guide to facts and fictions about climate change.*, and in the Academy-award winning film, *An Inconvenient Truth*. In December 2006, she testified before the U.S. Senate Committee on Environment and Public Works on the history of climate science: <http://epw.senate.gov/epwmultimedia/epw120606.ram>.

Dr. Oreskes has received broad recognition for her work from both the scientific and historical communities. In addition, she has been the recipient of the following awards for her considerable achievements to date: George Sarton Award Lecture, American Association for the Advancement of Science, 2004; American Philosophical Society Sabbatical Fellowship, 2001-2002; National Science Foundation Young Investigator Award, 1994-1999; National Endowment for the Humanities Fellowship for University Teachers, 1993-94; Society of Economic Geologists Lindgren Prize for outstanding work by a young scientist, 1993; Ritter Memorial Fellowship in History of Marine Sciences, Scripps Inst. of Oceanography, 1994; and *Who's Who in America*, *Who's Who in American Science & Engineering*, and *Who's Who in the West*.

Dr. Oreskes is currently completing her most recent book, *Science on a Mission: American Oceanography in the Cold War and Beyond*. She has also begun work on a new book, *Challenging Knowledge: How the American People Have Been Misled about Global Warming*.

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The **Next Seminar** is tentatively scheduled for the week of **July 18th, 2007**. Tentative Topic: **Space Weather: Emerging Science, Impacts, and Policy Issues**.

Please see our web site for seminar summaries, presentations and future events:
<http://www.ametsoc.org/seminar>

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