

## GLOBAL WARMING: HOW MUCH, HOW SOON, HOW DANGEROUS?

In his speech this week to the Intergovernmental Panel on Climate Change, George Bush addressed the issue of "global warming." This is the term used to describe the phenomenon that a number of experts fear will result from the carbon dioxide that is pumped into the atmosphere by industry and other human activities. Such warming, it is said, will cause disastrous droughts and will flood coastal regions as the polar ice caps melt. If this will happen, the United States government and public should be very concerned and should search for rational policies and methods to prevent it. Bush rightly told the Intergovernmental Panel: "The stakes here are very high; the consequences, very significant."

The trouble is, the scientific community is still very uncertain about the extent of global warming — how much the earth's climate will warm (if it will at all), how soon this will happen, and how much damage this could cause. Until scientists accumulate more data and draw sounder conclusions, officials and lawmakers should proceed slowly before setting policies designed to combat global warming. Bush thus correctly cautioned this week's meeting: "Some may be tempted to exploit legitimate concerns for political positioning. Our responsibility is to maintain the quality of our approach, our commitment to sound science, and an open mind to policy options."

**Studied Approach.** By his statement, Bush so far is rejecting a crash program to deal with the alleged problem of global warming. Instead, he prudently supports increased research into the possible effects of man-made emissions into the atmosphere. He insists, meanwhile, that his responsibilities as President include taking into account the effects on the economy, industry, and American jobs of any federal global warming policy. Bush's studied approach so far merits the support of policy makers and Americans concerned about the environment.

The current heightened concern over damaging climate change began with the 1988 testimony of James Hansen, a physicist at the National Aeronautics and Space Administration's Goddard Institute for Space Studies before a Senate committee. There Hansen maintained that he was "99 percent confident" that the average worldwide temperature was rising as a result of burning fuels such as oil and coal for energy. He predicted that by the middle of the next century this would cause increased droughts, rising sea levels, and a global environmental catastrophe.

In the two years since Hansen's testimony, however, scientists investigating the matter have found new evidence indicating that levels of global warming are much lower than Hansen said. Even this new evidence should be viewed with great caution. Almost all findings on global warming use complicated computer models to predict the weather or future climates. These models so far are crude approximations of reality. Predictably, their results have varied enormously. Example: Over the past two years, calculations of the degree of future global warming have been reduced from an average of 9 degrees Fahrenheit by the middle of the next century to 3

or 4 degrees. Example: Estimates of potential sea level rise have been reduced from an average of three feet down to one foot. And these estimates undoubtedly will be adjusted in the coming years.

One way of checking a computer model is to feed it data and ask it to predict a result that already is known. This has been done with the models that are used to predict future warming. The result: When fed information corresponding to the conditions existing in the late 19th century, the computer models "predict" that today's climate should be far hotter than it actually is. The lesson here is that these computer models are not yet ready to be a guide for making policies or passing laws.

There is even evidence indicating that the atmosphere is cooling. A study by University of Virginia Professor of Environmental Science Patrick Michaels, for instance, finds that from 1918 to 1958 there were only five winters during which outbreaks of arctic air swept as far as the Southeastern United States. Since 1958, however, this has happened in 21 of the 31 winters. Because of a general global cooling trend from the 1940s through the 1960s, many scientists even were predicting the advent of another ice age.

Records of temperature trends in the U.S., moreover, give no indication of a warming trend. Meteorologist Thomas Karl of the National Climatic Data Center headed a 1988 study that finds "no statistically significant evidence of an overall increase in annual temperature or change in annual precipitation for the contiguous U.S. [between] 1895-1987."

**Marshalling the Facts.** In light of the uncertainty concerning the degree of global warming and the inaccuracy of predictions made only two years ago, it is very premature to propose policies that would restrict severely the burning of fossil fuels. Such policies, after all, would impose huge costs on all Americans and on American living standards and competitiveness. They would shut many American factories, throw great numbers out of work, and raise the cost of production and of fuel for every factory and household. Rather than rush into such policies, the U.S. must give scientists more time to marshal the facts, conduct more accurate studies, and make more accurate projections. If policy makers had acted on the inaccurate predictions of two years ago, economically costly policies would be in place dealing with a crisis that is now known to be only half as serious as originally thought.

Beyond waiting for better data, policy makers must begin discussing how to establish priorities among competing needs of society. Even if a problem exists, policy makers owe it to the public to prescribe solutions that do the least damage to employment and living standards. Bush in his recent speech spoke of the need to match policy commitments to emerging scientific knowledge and to reconcile environmental protection with economic development. This is a wise and prudent approach, cool-headed advice for the global warming debate.

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For further information:

Warren T. Brookes, "The Global Warming Panic," *Forbes*, December 25, 1989.

William Booth, "New Models Chill Some Predictions of Severely Overheated Earth," *The Washington Post*, January 29, 1990.