Who do you trust on global climate change?

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3/9/08

Whenever the findings of scientific research conflict with strongly held beliefs or threaten economic interests, there is, predictably, push-back from groups and individuals who are affected. Because most people don't have the necessary scientific background to judge scientific claims on their merits, they trust people they consider to be their authorities.

However, in some cases, these authorities are not as scientifically informed as they might be. In light of some public confusion as to which authorities have “the real scoop,” It is advisable for anyone making decisions of a scientific nature to follow the consensus of the worldwide scientific community.

It’s important to know that consensus in science is not reached by popular vote. It is reached after dozens, hundreds or thousands of scientists have tested hypotheses related to the issue at hand and discovered that they were validated.

The worldwide scientific community keeps informed about research being done in specific areas, such as global warming, by reading research papers published in peer-reviewed scientific publications. To have a paper published in a respected journal such as *Nature* or *Science*, a researcher must be able to back up his or her claims by “showing the work,” in other words, the research methodology and the observations and calculations leading to his or her conclusions. Other researchers may challenge the conclusions, but then those researchers must do the work to back up their challenges. That is why scientific knowledge is constantly growing and adjusting to new discoveries.

On the topic of global climate change, a consensus of human causes was forming as early as 1979 in the Charney Report to the Carter administration.

In fact, knowledge about global climate change has been developing for more than a century. Here, a little history may be in order:

- In 1859, John Tyndall established that carbon dioxide was a greenhouse gas. [1]

- In the 1890’s Svante Arrhenius recognized that burning fossil fuels could alter the Earth’s climate. [2]

- By the 1930’s, Guy Callendar had compiled empirical evidence that this effect was already discernible. [3]

- In the 1950s, studies by Gilber Plass, Hans Suess and Roger Revelle led to studies by Charles David Keeling published in the early 1960s that atmospheric carbon dioxide was steadily rising. [4][5][6]

- In 1965, President Lyndon Johnson included warnings about climate change in a Special Message to Congress. Scientific advisory panels to presidents Johnson, Nixon, and Carter all issued warnings that climate change was already occurring. [7][8]

- In 1979, the JASON committee predicted that carbon dioxide would double and a temperature rise of 2-3 degrees C. would be achieved by 2035. Polar warming would be as high as 10-12 degrees C.

- As the result of this report, a second NAS panel re-examined the data, and the Charney report (1979) confirmed the data stating the scientific consensus that burning fossil fuels was leading to increased carbon dioxide in the atmosphere and was causing the rise in the earth’s temperature.

- In 1988, two things happened: the National Energy Policy Act was passed, and the U.N. Intergovernmental Panel on Climate Change (http://www.ipcc.ch) was formed. Several reports issued by the IPCC, most recently in 2007, all confirmed that human activity was the cause of the climate change we now see happening.
• In 1992, The U.N. Framework Convention on Climate Change met in Rio de Janeiro and called for immediate action to reverse the trend of mounting greenhouse gas emissions. George H.W. Bush signed on and the U.S. Senate unanimously ratified it.

So why is there still a “debate” on the issue? The “controversy” stems largely from the efforts of the George C. Marshall Institute, an ultraconservative think tank in Washington D.C. The Institute was set up in 1984 to defend Reagan’s SDI, or Star Wars, program against statements by the scientific community that the program would not work.

• In 1989, after the IPCC was formed, the Marshall Institute added the issue of climate change to their agenda. They then began to politicize the issue and write articles stating there was no scientific consensus on the subject.

Other issues the Marshall took positions on were acid rain, ozone, and the dangers of smoking tobacco. In every case they took positions contrary to the consensus of the scientific community. Their tactic: use the mass media to create the impression that there was scientific uncertainty. The effort was mainly headed by S. Fred Singer, who is connected with the oil industry.

In all these issues, science proved to be on the correct side of the issue, as it is with global climate change, yet the tactics of the Marshall Institute have been successful in furthering the causes of their political allies, delaying the implementation of solutions that would lead to the reduction of carbon dioxide emissions.

KCFS encourages members of the public who need reliable information on scientific issues like global climate change to seek facts supported by reputable scientific researchers and organizations. These include:

• AAAS – The American Association for the Advancement of Science - http://www.aaas.org
• The National Academies - http://www.nationalacademies.org
This link takes you to the National Academies’ searchable Global Warming/Climate Change Collection - http://www.nap.edu/collections/global_warming/index.html
• IPPC – Intergovernmental Panel on Climate Change - http://www.ipcc.ch

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