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## Climate Scientists Agree on Warming, Disagree on Dangers, and Don't Trust the Media's Coverage of Climate Change

S. Robert Lichter, Ph.D, April 24, 2008

*STATS survey of experts reveals changing scientific opinion on global warming, extent of pressure to play up or down threat.*

Over eight out of ten American climate scientists believe that human activity contributes to global warming, according to a new survey released by the Statistical Assessment Service (STATS) at George Mason University. The researchers also report that belief in human-induced warming has more than doubled since the last major survey of American climate scientists in 1991. However, the survey finds that scientists are still debating the dynamics and dangers of global warming, and only three percent trust newspaper or television coverage of climate change.

The survey, which was conducted for STATS by Harris Interactive®, also found increased concern among climate scientists since the Gallup organization asked them many of the same questions in 1991.

Between March 19 through May 28, 2007 Harris Interactive conducted a mail survey of a random sample of 489 self-identified members of either the American Meteorological Society or the American Geophysical Union who are listed in the current edition of American Men and Women of Science. A random sample of this size carries a theoretical sampling error of +/- four percentage points. A detailed description of the study's methodology as well as that of the earlier Gallup survey is available on request.

### Major Findings

#### Scientists agree that humans cause global warming

Ninety-seven percent of the climate scientists surveyed believe "global average temperatures have increased" during the past century.

Eighty-four percent say they personally believe human-induced warming is occurring, and 74% agree that "currently available scientific evidence" substantiates its occurrence. Only 5% believe that that human activity does not contribute to greenhouse warming; the rest are unsure.

#### Scientists still debate the dangers

A slight majority (54%) believe the warming measured over the last 100 years is *not* "within the range of natural temperature fluctuation."

A slight majority (56%) see at least a 50-50 chance that global temperatures will rise two degrees Celsius or more during the next 50 to 100 years. (The United Nations' Intergovernmental Panel on Climate Change cites this increase as the point beyond which additional warming would produce major environmental disruptions.)

Based on current trends, 41% of scientists believe global climate change will pose a very great danger to the earth in the next 50 to 100 years, compared to 13% who see relatively little danger. Another 44% rate climate change as moderately dangerous.

Seventy percent see climate change as very difficult to manage over the next 50 to 100 years, compared to only 5% who see it as not very difficult to manage. Another 23% see moderate difficulty in managing these changes.

#### A need to know more

Overall, only 5% describe the study of global climate change as a "fully mature" science, but 51% describe it as "fairly mature," while 40% see it as still an "emerging" science. However, over two out of three (69%) believe there is at least a 50-50 chance that the debate over the role of human activity in global warming will be settled in the next 10 to 20 years.

Only 29% express a "great deal of confidence" that scientists understand the size and extent of anthropogenic [human] sources of greenhouse gases, and only 32% are confident about our understanding of the archeological climate evidence.

#### Climate scientists are skeptical of the media

Only 1% of climate scientists rate either broadcast or cable television news about climate change as "very reliable." Another 31% say broadcast news is "somewhat reliable," compared to 25% for cable news. (The remainder rate TV news as "not very" or "not at all" reliable.) Local newspapers are rated as very reliable by 3% and somewhat reliable by 33% of scientists. Even the national press (New York Times, Wall St. Journal etc) is rated as very reliable by only 11%, although another 56% say it is at least somewhat reliable.

Former Vice President Al Gore's documentary film "An Inconvenient Truth" rates better than any traditional news source, with 26% finding it "very reliable" and 38% as somewhat reliable. Other non-traditional information sources fare poorly: No more than 1% of climate experts rate the doomsday movie "The Day After Tomorrow" or Michael Crichton's novel "State of Fear" as very reliable.

#### Are climate scientists being pressured to deny or advance global warming?

Five percent of climate scientists say they have been pressured by public officials or government agencies to "deny, minimize or discount evidence of human-induced global warming," Three percent say they have been pressured by funders, and two percent perceived pressure from supervisors at work.

Just three percent report that they were pressured by public officials or government agencies to "embellish, play up or overstate" evidence of global warming: Two percent report such pressure from funders, and two percent from supervisors.

#### Changing scientific opinion

In 1991 the Gallup organization conducted a telephone survey on global climate change among 400 scientists drawn from membership lists of the American Meteorological Association and the American Geophysical



Union.

We repeated several of their questions verbatim, in order to measure changes in scientific opinion over time. On a variety of questions, *opinion has consistently shifted toward increased belief in and concern about global warming*. Among the changes:

- In 1991 only 60% of climate scientists believed that average global temperatures were up, compared to 97% today.
- In 1991 only a minority (41%) of climate scientists agreed that then-current scientific evidence "substantiates the occurrence of human-induced warming," compared to three out of four (74%) today.
- The proportion of those who see at least a 50-50 chance that global temperatures will rise two degrees Celsius has increased from 47% to 56% since 1991.
- The proportion of scientists who have a great deal of confidence in our understanding of the human-induced sources of global climate change rose from 22% in 1991 to 29% in 2007. Similarly, the proportion voicing confidence in our understanding of the archeological climate evidence rose from 20% to 32%.
- Despite these expressions of uncertainty, however, the proportion which rating the chances at 50-50 or better that the role of human behavior will be settled in the near future rose from 47% in 1991 to 69% in 2007.

#### Methodology

The 2007 study was conducted by mail within the United States by Harris Interactive on behalf of Statistical Assessment Service between March 19 and May 28, 2007 among 489 professional scientists who were either a member of the American Meteorological Society (AMS) or the American Geophysical Union (AGU). Weighting was done to correct for the fact that a respondent with dual membership in the organizations had a greater chance of being included in the sample.

All sample surveys and polls, whether or not they use probability sampling, are subject to multiple sources of error which are most often not possible to quantify or estimate, including sampling error, coverage error, error associated with non-response, error associated with question wording and response options, and post-survey weighting and adjustments. Therefore, Harris Interactive avoids the words "margin of error" as they are misleading. All that can be calculated are different possible sampling errors with different probabilities for pure, unweighted, random samples with 100% response rates. These are only theoretical because no published polls come close to this ideal.

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Statistical Assessment Service  
2100 L Street, Suite 300 Washington D.C. 20037  
tel) 202.223.3193 fax) 202.872.4014

