

Science warms to the cause -- Global Warming, Climate Change

Source: <http://sci.tech-archive.net/Archive/sci.econ/2004-06/1109.html>

From: Psalm 110 (*Melchizedek_at_USA.com*)

Date: 06/20/04

Date: 19 Jun 2004 17:23:51 -0700

http://www.theaustralian.news.com.au/common/story_page/0,5744,9884327%255E30417,00.html

Science warms to the cause
If scientists disagree on the greenhouse effect, how do laymen find the truth, asks science writer Leigh Dayton
June 19, 2004

IN 1990, the largest consortium of climate scientists ever gathered delivered a clear, if not uniformly welcome, message. Global warming was real and significant changes to Earth's climate were inevitable.

Three assessment reports down the track, the Intergovernmental Panel on Climate Change -- established in 1988 by the UN Environment Program and the World Meteorological Organisation -- went further. After sifting, sorting and analysing all the scientific clues they could gather, in their 2001 report the IPCC experts pointed the finger of blame squarely at Homo sapiens.

"There is new and stronger evidence that most of the warming observed over the past 50 years is attributable to human activities," they concluded in the three-volume report, covering the science along with the effects of the resulting climate change. The report also canvassed steps that nations could take to reduce global warming and set out information for decision-makers.

The climate-changing activities cited in the most recent report include humanity's propensity to burn fossil fuels, clear land and engage in intensive agriculture. Such practices release a host of greenhouse gases into the atmosphere, particularly carbon dioxide, methane and artificial chemicals called halocarbons.

The gases prevent heat from escaping into space, thereby turning up the planet's average temperature and triggering a cascade of atmospheric, meteorological and oceanographic changes. The result, claim the scientists, will be extensive destabilisation of Earth's climate system.

Referring to the report, UNEP executive director Klaus Topfer wrote: "[It] presents a compelling snapshot of what the Earth will probably look like in the late 21st century, when a global warming of 1.4C to 5.8C will influence weather patterns, water resources, the cycling of the seasons, ecosystems, extreme climate events and much more. Even greater changes are expected in the more distant future."

Although, as Topfer notes, the IPCC process engages hundreds of the world's leading experts in reviewing the most up-to-date, peer-reviewed literature on the scientific and technical aspects of climate change, it is not without detractors.

Early critics, such as meteorologist Richard Lindzen of the Massachusetts Institute of Technology, pointed to disagreement between computer simulations of future climate. If scientists couldn't agree on details, their findings should be discounted, the argument ran.

Such reasoning has, and continues, to miss the point, counter IPCC participants, including Penny Whetton, a climatologist with the CSIRO atmospheric research division in Melbourne. All three reports have clearly outlined the nature and magnitude of uncertainty and sketch alternative futures based on scientific knowns and unknowns, as well as developments in areas such as technology, government action and population growth.

Whetton says the nature of criticism has shifted. "We hear less than we did a few years ago that the science is all wrong and climate change isn't happening," she says. "The critics seem to accept global warming much better."

Today, critics such as self-proclaimed environmental sceptic and statistician Bjorn Lomborg focus on the magnitude of expected change and the social and economic value of countering change. Additionally, a small group of geologists claim the IPCC has ignored the geological record.

For instance, the University of Melbourne's Ian Plimer and Bob Carter of James Cook University and the University of Adelaide have argued in *The Australian* that cores drilled deep into the ocean, the Antarctic and Greenland show that climate change occurred repeatedly in the geological past. According to Whetton, this is exactly the sort of data that will be included in the next assessment report, which is just getting under way. "But just because there have been changes in the geological past, that doesn't make it any easier for us to deal with now and it [didn't happen] with 6 billion people on the planet," she says.

A goal of the fourth assessment, due in 2007, will be to tighten up regional climate change forecasts and the rates of predicted change, areas of the greatest uncertainty. At least eight Australian experts, including Whetton, have signed on to the IPCC team.

Meanwhile, observations cited in the third IPCC report suggest that global climate is indeed changing. Some examples are that the warmest decade of the millennium was the 1990s and 1998 the warmest year; the mean sea level rose 10cm to 20cm; snow cover in the northern hemisphere declined about 10 per cent since the late '60s; rainfall increased from 0.5 per cent to 1 per cent per decade during the 20th century; the concentration of carbon dioxide increased by about 30 per cent over pre-industrial levels; and recent El Ninos are more intense, frequent and persistent than those of 100 years ago.

Despite more and better science, one enormous climate change uncertainty remains: what -- if anything -- humanity will do about it. Not even the best and biggest scientific panel can predict that outcome with 100 per cent certainty.