Climate change 3: How sceptical is too sceptical?

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> "The current situation of the world in relation to the climate problem is that we're in a car with bad brakes driving toward a cliff in the fog, and the fog is the scientific uncertainty about the details that prevent us from knowing exactly where the cliff is. The climate change sceptics are telling us that the fog is a consolation and that we shouldn't worry because we're uncertain about the details.
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> "But of course any sane person driving a car toward a cliff in the fog, and knowing that the brakes are bad [and] that it takes the car a long time to stop, will start putting on the brakes, trying to slow the car, without knowing exactly where the cliff is—but just in the hope that by putting on the brakes we'll be in time to keep from going over the cliff.
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> "You don't have to be sure that you can still avoid going over the cliff to put on the brakes; you want to do it in any case. And that's what the world should be doing with respect to the emissions of greenhouse gases that are causing this climate problem. There's a chance we'll go over the cliff anyway but prudence requires that we try to stop the car."

So says Professor John Holdren, President of the American Association for the Advancement of Science. Holdren's scientific expertise is not in climate science, but he speaks for a general consensus among the members of his Association. (The 'cliff' in his metaphor refers to a condition feared by climate scientists, when climate systems 'flip' into a new mode—a 'runaway greenhouse effect'. This is a condition of positive feedback, when snow and ice has melted to the point that the earth reflects less sunlight and so warms more quickly, and when seas and land masses respond by emitting further greenhouse gases that warm the earth some more. Scientists have no idea when this alarming scenario might occur, if at all.)

Let us quickly review the general themes of climate-change science:

- There are straightforward physical reasons why CO_2 absorbs and re-emits long-wave infrared radiation that is emitted by the earth after it has been warmed by very short-wave energy from the sun; so theory suggests that increased atmospheric CO_2 will warm the earth.
- Post-industrial atmospheric CO_2 concentration has spiked at a rate and to a level never seen in hundreds of thousands of years. (Atmospheric CO_2 has been carefully measured since the 1950s, and scientists have several ice-core samples that can be used to determine ancient levels.)
- As theory has predicted, the average temperature of the earth has measurably warmed a little; deposits of ice across the globe are measurably melting; species that live in temperate climates are receding to higher latitudes; and so on.
- The 'smoking gun' for all these changes is most likely to be the injection of CO_2 into the atmosphere through sustained use of fossil fuels.

But the amount written on climate-change presents us all with a difficult knowledge-problem. Some knowledge-problems are to do with *too little* information: some datum is missing that will unlock the puzzle. This knowledge-problem is the opposite: there is *too much* information, and the mystery resides in how to meaningfully stitch it together. Sceptics respond to this mass of information in their own way.

- Until recently, they have pointed to conflicting data to claim that the earth is not warming in line with theoretical predictions. (For example a 1940-1975 dip in average global temperatures did not match the theoretical predictions; however it is now generally accepted that this dip was an artefact of the 'global dimming', caused by the particulate atmospheric pollution that was largely eradicated in the 1970s.)
- They now generally accept that the earth is warming, but believe this warming can be attributed to natural causes (such as increased solar activity).
- The emerging consensus that human activity has triggered climate change is, they believe, a form of 'group-think'—an intellectual fad that will come and go.
- They worry that action against climate change will cause severe economic damage—a danger they take to be more clear and present than the possible future dangers of climate change.

It has become harder to maintain scepticism, though, after the recent round of reports by the Intergovernmental Panel on Climate Change (IPCC). Established in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP), the IPCC is open to all members of the UN and WMO. One of the main activities of the IPCC is to provide at regular intervals an assessment of the state of knowledge on climate change. Three key working groups (WGs) are delivering a series of reports (the fourth such series since the IPCC was established). A 'synthesis report', bringing together the findings of all three working groups, is planned for later this year.

- ***"The Physical Science Basis"*** (WG1) assessed the scientific aspects of the climate system and climate change. (The twenty-three page summary of their fourth Report, released on 2 February, 2007, was referred to in our Social Issues briefing #058. The full 1500 page report has since been released.)
- ***"Impacts, Adaptation and Vulnerability"*** (WG2) assesses the negative and positive consequences of climate change, the vulnerability of socio-economic and natural systems to it, and options for adaptation. (The summary of their report was released on 6 April, 2007).
- ***"Mitigation of Climate Change"*** (WG3) assesses options for limiting greenhouse gas emissions and otherwise mitigating climate change. (Their summary report was released on 4 May, 2007).

In a recent public seminar at the University of NSW, Dr Scott Power (Australian Bureau of Meteorology Research Centre) described these reports as 'magnificent'. A lead author in the "Impacts" report, Mr Kevin Hennessy (Climate Impacts and Risk Group, CSIRO Marine & Atmospheric Research Centre), described the four-year process behind the report he was involved in. The first three of four successive drafts are reviewed by forty expert review editors; the last two of the four drafts are also reviewed by governments. Over 2000 comments were received from governments and scientists, and IPCC responses to these comments are transparent and traceable. Hennessy described this process of review as one of the most comprehensive in the world.

How much scepticism is too much scepticism? We face this problem in every area of life, from whether or not we can trust our work colleagues, to whether our loved ones really love us and whether Christian faith is really true. Too little scepticism is gullible, but there comes a time when too much scepticism is a crippling disconnection from reality.

Humans can be wrong: maybe the problem has been overstated. That is unlikely in the case of the IPCC, which is an inherently conservative body whose processes have the effect of stripping out all but the most agreed-upon claims. But if it turns out that a false alarm has sounded, have we done wrong to respond to an alarm? Of course not; only fools ignore alarms. When an alarm turns out to be false, we may roll our eyes; yet the wise continue to sound alarms and respond. Holdren's position therefore sums up the SIE's current view. An alarm has been sounded, and it is prudent to trust those sounding it and work with them.

One more point is worth adding. Human induced climate change is sad, and there is a place for feeling that sadness. But the best response to this sadness is not denial, but to humbly remember the sovereignty of the God who still loves His world and who regularly helps people to solve the messes we make. Even if humanity's excesses are changing the climate, we may still be people of quiet confidence and hope.

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Sources/Further Reading:

John Holdren, *The Science Show* ABC Radio National 24/2/2007
http://www.abc.net.au/rn/scienceshow/stories/2007/1855511.htm

Intergovernmental Panel on Climate Change: http://www.ipcc.ch