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Column

When it's right to be reticent

The caution of climate scientists is commendable even if caution is out of fashion, says Philip Ball.

Philip Ball

Jim Hansen is no stranger to controversy. Ever since the 1980s he has been much more outspoken about the existence and perils of human-induced climate change than most of his scientific colleagues. A climate modeller at NASA's Goddard Institute for Space Studies in New York, Hansen has flawless credentials to speak about climate change, and has fought for his right to do so (see 'Has NASA's press office gone too far?').

His views haven't only ruffled political feathers — they have dismayed other scientists too, who are uncomfortable with what they see as Hansen's impatience with science's inherent caution.

So in some ways, Hansen's latest foray will surprise no one. In a preprint paper submitted for publication[1], he claims that "scientific reticence" is seriously underselling the potential danger that climate change poses — specifically, that it is "inhibiting communication of a threat of potentially large sea-level rise".

Because disintegration of polar ice sheets is poorly understood, it is very difficult for scientists to make a reliable estimate of the likely future changes in sea level. As a result, Hansen notes, the Intergovernmental Panel on Climate Change (IPCC) put figures on those aspects of sea-level rise that they can estimate with some confidence, but refrained from putting numbers on this key ingredient of the problem (see 'Climate report released'). This could give the impression that the probable changes will be much smaller than those Hansen considers likely.

Strange proposal

Hansen regards the IPCC as conservative. This, he admits, contributes to the body's authority and is "probably a necessary characteristic, given that the IPCC document is produced as a consensus among most nations in the world and represents the views of thousands of scientists."

The solution to this reticence, Hansen says, is not to change the IPCC, but to create "supplementary mechanisms" for communicating the perils of climate change to the public and politicians. He calls for a panel of leading scientists (perhaps the National Academy of Sciences) to hear evidence and issue a "prompt, plain-written report" — which clearly he envisages as a much more forceful statement about impending climate catastrophe and the need for immediate action to "get on a fundamentally different energy and greenhouse-gas emissions path".

This is a strange proposal, however. Basically, Hansen is calling on the scientific community to collect their scientific thoughts and then to speak out unscientifically — which is to say, without the caveats and caution that are the stock-in-trade of good science.

Amongst friends

Hansen points out that in fact scientists do this all the time — when they are talking among themselves. He recalls how, when challenged by a lawyer representing US automobile manufacturers to give the name of a glaciologist who publicly agreed with his view on sea-level rise (that it would rise more than a metre by 2100), he could not do so. Even though he had heard plenty of such scientists express deep concerns to this effect in private exchanges, none had said anything definitive in public.

Why wouldn't they do that, if it's really what they thought? Hansen posits what he calls a "John Mercer effect". In 1978, Mercer, a glaciologist at Ohio State University, suggested that anthropogenic global warming could cause the West Antarctic ice sheet to disintegrate and sea level to surge by more than 5 metres within 50 years[2]. Mercer's paper was disputed by other scientists, who were generally portrayed as the sober and authoritative counterbalance to Mercer's "alarmism". "It seemed to me that the scientists preaching caution... fared better in receipt of research funding," Hansen adds.

Hansen says he experienced this himself in the early days of climate-change research. This history is instructive in the face of common claims from 'climate sceptics' that climate scientists play up the threat of global warming in order to secure funding.

Hansen was one of the first to point out, in a paper he co-authored in 1981, that rising levels of atmospheric carbon dioxide could be linked to a warming trend throughout the twentieth century[3]. By 1989 he was prepared to state with confidence that we could already see the effects of human-induced greenhouse warming in action. His colleagues felt that this was jumping the gun — that it was still too early to rule out natural climate variability[4].

That reticence looks rather remarkable in the light of the consensus that has emerged today. But I say it was correct, and the community can regard its restraint with pride. Hansen seems to have been proved almost certainly right that the warming is human-induced, but he could just as easily have been wrong. His views in 1989 may have been based on sound intuition, but the science wasn't yet there to

support it.

Doubt versus dogma

All the same, Hansen is right to say that "scientific reticence" poses problems. The climate doesn't always change slowly and predictably, but can accelerate and pass points of no return. Excessive caution could end up sounding the alarm literally too late. Possibly it already has.

But the real issue here is not that scientists are reticent — it is that the public, politicians and leaders are not accustomed to reasoning and debating as scientists do.

It is within the very grain of science — Popper's legacy, of course - that it advances by self-doubt. The contemporary culture, on the other hand (and probably it has never been very different), favours dogmatic, absolute statements, unencumbered by caveats. If they prove to be wrong, no matter — another equally definitive statement will blot out memory of the last one. Thus you can say, "HIV does not cause AIDS" or "there is no such thing as society" and still be taken seriously years later as a commentator on current affairs.

The moment it abandons its caution and claims false certainty, science loses its credibility; indeed, it ceases to be true science. This is not to say that scientists should commit to nothing for fear of being proved wrong. Nor is it by any means a call for scientists to step back from making pronouncements that guide public policy — if anything, I think they should do more of that.

But when they are talking about scientific issues, scientists cannot afford to abandon their (public) reticence. It is as individuals, not as community spokespeople, that they should feel free (as Hansen rightly does) to voice views, intuitions and beliefs that reach beyond the strict confines that science permits.

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