

Climate Change: The Evidence

Contrary to popular perception, climate change is not theory and not vague. It is real, and it is happening. The evidence is scientific and solid, the conclusions from it are inescapable. By Suzanne Hall

The main reason climate change is being denied or ignored today is because people doubt its scientific basis. Currently, the general perception is that it is theory rather than reality. Nothing could be further from the truth. The evidence put forward in support of the claim that the earth is warming due to human activity and that climate is changing as a result is based on empirical data recorded scientifically and analysed by experts in their fields.

Most of the evidence we now have about global warming and climate change comes from the Intergovernmental Panel on Climate Change (IPCC), an international scientific body set up to investigate climate change and advise policymakers on the subject. The key findings on climate change are contained in the [Third Assessment Report \(TAR\)](#), released in 2001, by a working group of the IPCC. The TAR builds on earlier reports and on evidence collected over the previous five years. It is the work of 122 lead authors and 515 contributing authors from all over the world, and it was reviewed by 337 experts. The TAR, therefore, reflects the general consensus of research scientists active in a variety of fields related to climate change, from geology and meteorology to economics and demography.

As with any scientific document, the report is open to criticism from other scientists. Negative reaction, however, has been minimal and limited to scepticism. Sir John Houghton, who was previously co-chairman of the scientific working group of the IPCC, estimates that there are fewer than 10 active research scientists who disagree with the idea of human-induced climate change. This against the thousands who agree with the consensus

and the world community who have thought the evidence compelling enough to warrant an international treaty (the Kyoto Protocol) to address the problem.

Scepticism derives from two contentions: (i) that the global climate system is imperfectly understood, and (ii) that interpretations of recent temperature changes have been made too soon to be reasonably conclusive. The first point is valid, but is hardly an argument to disqualify the IPCC conclusions. Admittedly, it is not possible to say with certainty that observed changes in climate are due to global warming or to human activity. But the patterns appear to suggest this. The second point is much weaker. It seeks to make light of the extraordinary increase in global temperature over the last century by claiming inconclusive proof. When considered in terms of mathematical logic, yes, the proof is inconclusive. When considered in terms of probability, the evidence of human-induced global warming is overwhelming. The question boils down to this: Is the sudden and steep increase in global temperature over the last 100 years (*see companion article [Climate Change: The Problem](#) for details*) part of a normal long-term planetary cycle, or is it human-induced? The increase in temperature coincides with increased industrial production, increased economic growth, and (over the last 30 years) measured increases in greenhouse gas emissions. That's an extraordinary coincidence of behaviour among these indicators, and it points to the probability that global warming is indeed linked to man-made activities. To argue against that probability is to be overly optimistic and, in the circumstances, irresponsible. Sceptics spread doubt and delay serious action. And those who turn a blind eye to climate change in an attempt to deny reality manifest another kind of irresponsibility: that of the uncaring and unethical. (*See companion article [Climate Change: The Ethics](#) .*)

The evidence of human-induced global warming and, probably, consequent climate change is solid. We should pay attention to the problem and start to frame everyday and larger decisions in its context too.

24 July 2004. References: 'How We Can Save the Planet' by Mayer Hillman, Penguin, 2004; 'Third Assessment Report' of the IPCC, 2001.

SIDEBARS

Chasing Myths

The link between the burning of fossil fuels and global warming is a myth.

– David Bellamy, *Daily Mail*, London, July 2004.

Editor: *This is denial, not scepticism.*

Certainty and Probability

One aim of the physical sciences has been to give an exact picture of the material world. One achievement of physics in the 20th century has been to prove that that aim is unattainable.

– Jacob Bronowski, *Science and Human Values* (1961)

Distorting Science

No science is immune to the infection of politics and the corruption of power.

– Jacob Bronowski, *in Encounter*, July 1971.

Just Think!

The whole of science is nothing more than a refinement of everyday thinking.

– Albert Einstein, *Physics and Reality* (1936)

SIDEBARS

Doubt and Certainty

It would strike me as ridiculous to want to doubt the existence of Napoleon; but if someone doubted the existence of the earth 150 years ago, perhaps I should be more willing to listen, for now he is doubting our whole system of evidence.

– Ludwig Wittgenstein, *On Certainty* (1969)