



This is the print version of the [Skeptical Science](http://sks.to/consensus) article "[There is no consensus](http://sks.to/consensus)", which can be found at <http://sks.to/consensus>.

## The 97% consensus on global warming

### What The Science Says:

97% of climate experts agree humans are causing global warming.

### Climate Myth: There is no consensus

The Petition Project features over 31,000 scientists signing the petition stating "There is no convincing scientific evidence that human release of carbon dioxide will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere ...". ([Petition Project](#))

Science achieves a consensus when scientists stop arguing. When a question is first asked – like ‘what would happen if we put a load more CO<sub>2</sub> in the atmosphere?’ – there may be many hypotheses about cause and effect. Over a period of time, each idea is tested and retested – the processes of the scientific method – because all scientists know that reputation and kudos go to those who find the right answer (and everyone else becomes an irrelevant footnote in the history of science). Nearly all hypotheses will fall by the wayside during this testing period, because only one is going to answer the question properly, without leaving all kinds of odd dangling bits that don’t quite add up. Bad theories are usually rather untidy.

But the testing period must come to an end. Gradually, the focus of investigation narrows down to those avenues that continue to make sense, that still add up, and quite often a good theory will reveal additional answers, or make powerful predictions, that add substance to the theory.

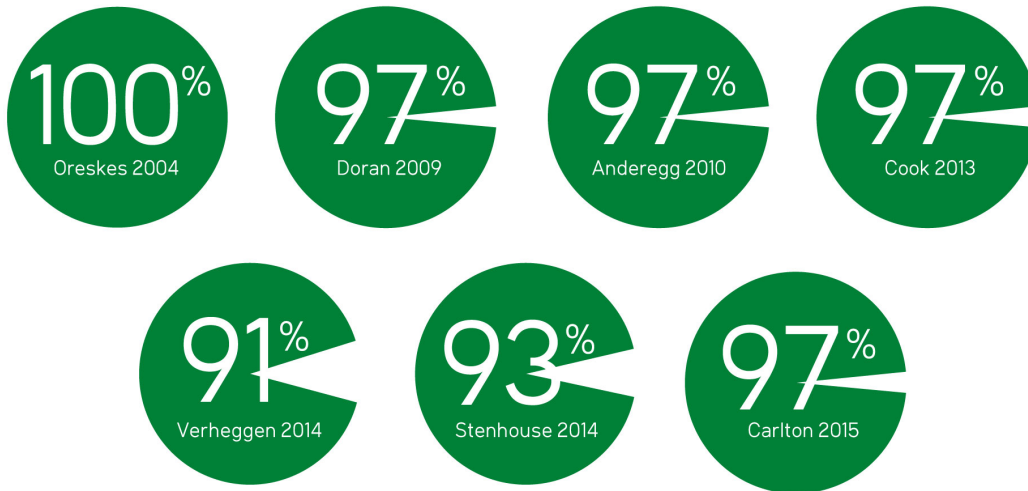
So a consensus in science is different from a political one. There is no vote. Scientists just give up arguing because the sheer weight of consistent evidence is too compelling, the tide too strong to swim against any longer. *Scientists change their minds on the basis of the evidence, and a consensus emerges over time.* Not only do scientists stop arguing, they also start relying on each other's work. All science depends on that which precedes it, and when one scientist builds on the work of another, he acknowledges the work of others through *citations*. The work that forms the foundation of climate change science is cited with great frequency by many other scientists, demonstrating that the theory is widely accepted - and relied upon.

In the scientific field of climate studies – which is informed by many different disciplines – the consensus is demonstrated by the number of scientists who have stopped arguing about what is causing climate change – and that’s nearly all of them.

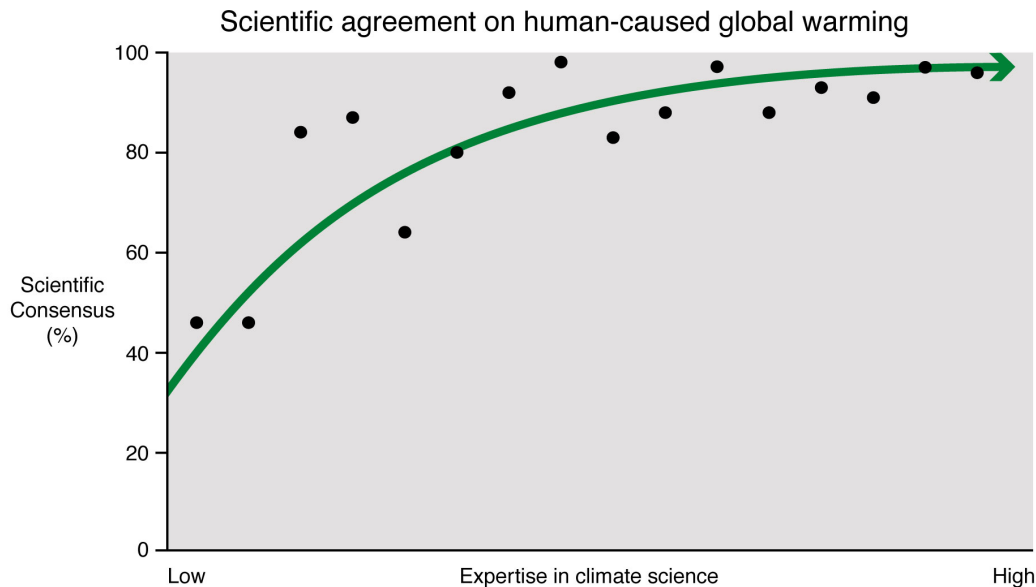
Authors of seven [climate consensus studies](#) — including [Naomi Oreskes](#), [Peter Doran](#), [William Anderegg](#), [Bart Verheggen](#), [Ed Maibach](#), [J. Stuart Carlton](#), and [John Cook](#) — co-authored [a paper](#) that should settle this question once and for all. The two key conclusions from the paper are:

- 1) Depending on exactly how you measure the expert consensus, it’s somewhere between 90% and 100% that agree humans are responsible for climate change, with most of our studies finding 97% consensus among publishing climate scientists.
- 2) The greater the climate expertise among those surveyed, the higher the consensus on human-caused global warming.

## Studies into scientific agreement on human-caused global warming



Expert consensus results on the question of human-caused global warming among the previous studies published by the co-authors of Cook et al. (2016). Illustration: John Cook. [Available on the SkS Graphics page](#)



Scientific consensus on human-caused global warming as compared to the expertise of the surveyed sample. There's a strong correlation between consensus and climate science expertise. Illustration: John Cook. [Available on the SkS Graphics page](#)

Expert consensus is a powerful thing. People know we don't have the time or capacity to learn about everything, and so we frequently defer to the conclusions of experts. It's why we visit doctors when we're ill. The same is true of climate change: most people defer to the expert consensus of climate scientists. Crucially, as we note in our paper:

*Public perception of the scientific consensus has been found to be a gateway belief, affecting other climate beliefs and attitudes including policy support.*

That's why those who oppose taking action to curb climate change have engaged in a misinformation campaign to deny the existence of the expert consensus. They've been largely successful, as the public badly underestimate the expert consensus, in what we call [the "consensus gap."](#) Only 16% of Americans realize that the consensus is above 90%.

Lead author John Cook explaining the team's 2016 consensus paper.

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**Update July 2015:**

Here is the relevant lecture-video from [Denial101x - Making Sense of Climate Science Denial](#)

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Skeptical Science explains the science of global warming and examines climate misinformation through the lens of peer-reviewed research. The website won the Australian Museum 2011 Eureka Prize for the Advancement of Climate Change Knowledge. Members of the Skeptical Science team have authored peer-reviewed papers, a [college textbook on climate change](#) and the book [Climate Change Denial: Heads in the Sand](#). Skeptical Science content has been used in university courses, textbooks, government reports on climate change, television documentaries and numerous books.



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