

Climate scepticism: Responding to accusations against the IPCC and other climate science

Climate sceptics have begun to cast doubt on the widely-accepted scientific consensus and on the integrity of the leading scientific body – the Intergovernmental Panel on Climate Change (IPCC) - by attempting to discredit their scientific findings. Some have even claimed that climate change is a conspiracy hatched up by climate scientists, NGOs, the clean energy lobby and the government. Tearfund attempts to debunk a series of accusations that have recently been propagated in the national media:

Accusation No. 1: The IPCC has a vested interest in proving climate change.

The IPCC is an independent body, which is responsible for publishing special reports on topics relevant to the implementation of the UN Framework Convention on Climate Change. The actual work of the IPCC is carried out by unpaid volunteers - about 2,800 of the world's leading climate scientists from universities and research institutes from around the world – who contribute to the reports as authors or reviewers. Sceptics suspect these scientists as having a vested interest in maintaining that climate change is real because they need to maintain the grants that they receive from governments and concerned individuals to continue their research. This is untrue. The scientific consensus has been established over many years by individuals with no obvious reason to report that climate change is occurring.

Climate sceptics often claim that they are prevented from lending a 'balanced voice' to the climate discussion. It is easy to get the impression that there are two factions within the scientific community - 'believers' in one corner and 'deniers' in the other. This is far from the truth. The vast majority of scientists agree with the IPCC's findings, whereas the numbers of sceptical scientists are increasingly few. Recent investigations have linked some sceptics to the coal and oil industries¹

Accusation No. 2: The leakage of emails from the UEA proves that scientists can't be trusted.

This accusation arose when a series of emails between scientists at the University of East Anglia's Climatic Research Unit (CRU) and their peers around the world were leaked ahead of the UN climate change talks in Copenhagen in December. Climate sceptics alleged that these emails prove that scientists manipulated evidence to strengthen the theory of man-made climate change. However, the hackers selected a few sentences out of the contents of approximately one thousand emails to try to prove that something untoward was going on. On first reading, some of the contents of the emails can seem quite alarming, such as when scientists refer to 'fixing' raw data. However, the reality is that it is common practice for scientists to 'fix' raw data to overcome particular problems.

Let us explain. Imagine for a moment that you have two sets of data that measure temperature rise and want to bring the sets together. You will soon discover that there are differences between the two sets, which can be accounted for by a series of important variables, such as the time of day the measurements were taken etc. This is a

¹ For information about these investigations, see www.independent.co.uk/environment/climate-change/thinktanks-take-oil-money-and-use-it-to-fund-climate-deniers-1891747.html and www.ucsusa.org/global_warming/science_and_impacts/global_warming_contrarians/exxonmobil-report-smoke.html

dilemma that scientists face the whole time and so they have become very skilled in making small adjustments to account for these factors - this is known as 'fixing'.²

There is a big distinction between making corrections or small adjustments to account for known problems and probable errors (within reason), and manipulating data so that it fits a certain theory. The latter would clearly be wrong. However, the Parliamentary inquiry into the email leakage concluded that there was no evidence to suggest the scientists at the UEA were engaged in any form of fraud or malpractice. The Commons Science and Technology Committee said that the reputation of the CRU remains 'intact' and declared that it was satisfied that the Unit's scientific procedures were 'in line with common practice in the climate science community' and it was 'not part of a systematic attempt to mislead.'

The scientific consensus is extremely robust - the evidence on whether the world has warmed is based on the evidence from tens of thousands of scientists from around the world, and confirms the strong link between human activity and climate change.

Accusation No. 3: The IPCC's Fourth Assessment Report is riddled with errors.

The Fourth Assessment Report is the most comprehensive and authoritative scientific assessment of current understanding of climate change. It was a massive undertaking; involving 450 lead authors and 800 contributing authors. During three stages of review, more than 2,500 expert reviewers collectively submitted 90,000 review comments on the various draft. The final report is comprised of three volumes, which are one thousand pages each. In a document of this size and scale, it is likely (some would say inevitable) that small mistakes will be made even with a rigorous review system in place. However, the one (or at the most two) errors that have been identified - and now rectified - should not be used to negate the rest of the report. None of the IPCC's main conclusions - such as those in the Policy-makers summary - are in any way affected by the errors.

Accusation No. 4: The IPCC lied when it reported that the Himalayan glaciers would be gone by 2035.

The IPCC reported in a regional chapter on Asia in its Fourth Assessment Report (2007) that 80 per cent of the Himalayan glacier area could disappear as soon as 2035. It turned out that this prediction was both inaccurate and it didn't match the IPCC projections on future glacial decline that appeared in other sections of the report. The IPCC has subsequently removed this projection, which had been derived from an unreliable outside source.

This error was the result of an oversight, rather than any deliberate attempt to deceive. The reality is that the glaciers are melting, but not at the rate of the retreat that was indicated in the regional chapter. There are other perfectly valid chapters on glaciers, snow, and ice that contain proper projections that have been approved by the world's leading glacial experts.³

Accusation No. 5: The IPCC was wrong when it claimed 40% of the Amazon could die off.

This is simply not true since the IPCC's claim that 40 per cent of the Amazon could die because of climate change is accurate. The claim was attributed to a WWF report, which used a scientific article that first appeared in *Nature* as the basis of the statement.

² New Scientist (2007) *Climate change: a guide for the perplexed* www.newscientist.com/article/dn18238-why-theres-no-sign-of-a-climate-conspiracy-in-hacked-emails.html?full=true

³ To view the relevant chapters, please see www.ipcc.ch/publications_and_data/ar4/wg1/en/ch4s4-5.html#4-5-1

Climate sceptics have claimed that this article only referred to the effects of logging and fires, rather than drought, on the Amazonian forest. However, the author of the *Nature* article has responded saying that it did take the effect of drought into account, which means that the statement stands correct. The only mistake the IPCC appears to have made is to have cited the WWF report in the footnote, rather than the original article. The claim is also backed up by a number of other scientific reviews.

Accusation No. 6: Claims about the rate of sea-level rise have been wildly exaggerated.

The main point of contention is that the report claims that 'the Netherlands is an example of a country highly susceptible to both sea-level rise and river flooding because 55% of its territory is below sea level,' which was found to be slightly inaccurate. This information was provided by the Netherlands Environment Assessment Agency, which has sent through a revised sentence that reads '55 per cent of the Netherlands is at risk of flooding; 26 per cent of the country is below sea level, and 29 per cent is susceptible to river flooding.' In this instance, the error lay with the Dutch government - rather than the IPCC - and the claim has no actual bearing on the climate science.

Accusation No. 7: The IPCC overstates the impact of climate change on African harvests.

The dispute arose over the claim that 'By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%.' This statement appeared in the IPCC's Synthesis Report, which effectively summarizes all of the Panel's findings from throughout the report, and was correctly referenced back to the original chapter where it appeared. It is true that the sentence about crop yields was plucked out of its broader context, which meant several important points of qualification weren't captured in the summarized version of the report. However, the main criticism levelled at the IPCC was that the statement wasn't derived from a peer-reviewed study (see Accusation no. 8). The truth of the matter is that the report was written by a Moroccan climate expert, and has been found to be a legitimate IPCC reference.

Accusation No. 8: The IPCC report relies on 'grey' literature that hasn't been properly reviewed.

The vast majority of the 18,000 references cited in the report come from peer-reviewed scientific journals. It is true that the IPCC relies on 'grey' sources of information, which are typically reports written by other agencies and governments, that have not necessarily been reviewed by others. However, this is necessary because these materials often contain invaluable information, which is not as yet published in scientific journals.

The IPCC has clear guidelines on how to use 'grey' literature, which involves carefully checking the information for accuracy. In the cases of the Amazon forest and Himalayan glacier, the review panel failed to follow these directions carefully, but these errors have now been ironed out (see Accusations 4 and 5). Gaps in knowledge that have previously been filled by grey sources are increasingly being filled by peer-reviewed science, which means the next IPCC report - due for release in 2015 - will rely less on this form of literature and thus be considered even stronger.