

## Climate change – are we still sure?

**Climate scientists have had a poor press in recent months. Stuart Parkinson investigates whether this is a sign that the scientific evidence of climate change is less robust, or just media misrepresentation.**

Over the last year or so, climate science has been heavily criticised in the media, especially in the UK and USA. Particular criticism has been directed at researchers at the Climate Research Unit at the University of East Anglia (UEA) and also at the Intergovernmental Panel on Climate Change (IPCC), which summarises the evidence of climate change, its causes and its potential effects, for international policy-makers. So, has the criticism been justified? Is the scientific evidence on the threat of climate change less robust than previously claimed?

### Stolen emails and 'hidden' data

The first wave of criticisms surfaced in November 2009 in the run-up to the Copenhagen climate negotiations, when about a thousand private emails were stolen from a server at UEA and released online.<sup>1</sup> These emails included correspondence between some leading climate scientists over the previous 13 years, including the Director of UEA's Climate Research Unit, Prof Phil Jones, and Prof Michael Mann of Pennsylvania State University.

Of the emails released, a small minority contained comments that were used to question the integrity of the scientists involved. For example, one of most widely circulated emails (written back in 1999) included the comment, "I've just completed Mike's Nature [the science journal] trick of adding in the real temps to each series for the last 20 years (i.e. from 1981 onwards) and from 1961 for Keith's to hide the decline".<sup>1</sup> Using a "trick" to "hide the decline" was interpreted by climate sceptics as evidence that data had been massaged to hide a true decline in global temperatures.

However, the explanation for these comments was far more mundane. The 'trick' referred to was simply shorthand for 'an effective methodology for processing the data,' and the 'decline' being 'hidden' was a well-known (at least within climate science circles) problem with a particular tree-ring data-set, which diverged from other comparable temperature data-sets.<sup>2</sup> Other 'suspect' comments within the emails were similarly innocuous, as a number of climate scientists pointed out,<sup>3</sup> although a few caused raised eyebrows due to their belligerent tone.

Nevertheless, the media furore caused by these emails – dubbed 'climategate' – was such that four separate investigations were carried out into the concerns during 2010. Three were carried out in the UK – one by the House of Commons Science and Technology Committee, and two commissioned by the UEA but carried out independently.<sup>4,5,6</sup> These focused mainly on the conduct of researchers at the Climate Research Unit, with the third review in particular going into considerable detail. The fourth, meanwhile, was carried out in the USA and focused on Michael Mann's research.<sup>7</sup>

The reviews rejected allegations that climate scientists had colluded to withhold scientific evidence, interfered with the peer-review process to prevent dissenting scientific papers being published, deleted raw data, or manipulated data to make the case for climate change appear stronger than it is. There was, however, some limited criticism, especially regarding inadequate responses to data requests under the Freedom of Information Act.

### Glaciers and the IPCC

With the debate about climategate still reverberating around the web, climate scientists were hit by another allegation in mid-January 2010. This one was directed at the IPCC and, in particular, a claim in its landmark 2007 report that Himalayan glaciers could melt away by 2035. The IPCC quickly admitted that this was a mistake that had crept into a paragraph in volume two of the report, but argued that its overall conclusions concerning the problems of melting glaciers in the 'summary for policymakers' remained valid.<sup>8</sup> Indeed, volume one of the report had been accurate in its reporting of the research on glacial retreat in the Himalayas. As journalists questioned whether the mistake undermined the IPCC's credibility, vice-chair of the IPCC, Jean-Pascal van Ypersele, was quoted as saying, "I don't see how one mistake in a 3,000-page report can damage the credibility of the overall report".<sup>8</sup>

However, this was not enough to quell critics. Not only was this mistake used by numerous commentators to question the validity of the whole report, further allegations of IPCC 'mistakes' and improper conduct of climate scientists were made, especially in *The Sunday Times*, but also in some other British newspapers. The alleged mistakes concerned issues such as the threat to crop yields in Africa due to climate change, possible links between trends in natural disasters and climate change, and the vulnerability of the Amazon rainforest. As climate scientists pointed out – for example on the

*RealClimate* website – there was generally little substance to any of the criticisms.<sup>9,10</sup>

Let us take as an example the criticism of the IPCC claim that "up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation." In an article in *The Sunday Times* at the end of January,<sup>11</sup> journalist Jonathan Leake alleged the claim was 'bogus', arguing that the IPCC had misrepresented research, and quoted British climate researcher, Simon Lewis, to back up his allegations. Unfortunately for Leake, Lewis filed a complaint stating that his views had been misrepresented in the article. *The Sunday Times* upheld the complaint, acknowledged that the article had incorrectly criticised the IPCC and removed the piece from its website.<sup>12</sup> Unfortunately, the retraction took place over four months later, so the damage to the credibility of climate science had been done.

To deal with the rising concerns about the accuracy of IPCC reports, the UN Secretary General requested the Inter-Academy Council (IAC), an umbrella group of many of the world's most prestigious science academies, to carry out a review of the IPCC's internal procedures. The IAC reported in August, concluding that "the IPCC assessment process has been successful overall".<sup>13</sup> However, it did make a series of recommendations to improve the robustness of future reports, including adopting clear procedures on conflicts of interest.

### Recent climate science

In amongst this frenzy of debate over the integrity of climate scientists, media reporting of climate science itself has taken a back seat. Nevertheless, the evidence continues to mount about the extent of the threat.

For example, papers in a special issue<sup>14</sup> of a Royal Society journal published online in November 2010 examine how quickly the world may reach 4°C of warming above the pre-industrial average, as well as the impacts this may bring. They conclude that a 'business as usual' scenario could yield such a change as early as the 2060s, with considerable impacts on, for example, water availability and crop yields.

Meanwhile, although the UK has experienced unusually cold temperatures during recent winters, the globally averaged temperature continues to be exceptionally high, with 2010 set to be among the three highest years on record.<sup>15</sup> Moreover, the decadal average of global temperature – a more

reliable indicator than annual average – has been markedly higher in the first decade of the 2000s than in any previous decade on record.

Another study that examined ‘expertise’ in climate science is also notable.<sup>16</sup> It analysed the views and publication records of over 1,300 climate researchers. Of those with highest rate of climate science publications, 97-98% were convinced that human activities were causing climate change. Sceptical researchers had much lower levels of expertise in the field.

## Sceptics and public opinion

If there is so little substance behind the media criticisms of the last year, one must ask how such stories became so prominent. A detailed examination is beyond the scope of this article, but one facet has certainly been the influence of leading free-market advocates and their allied think tanks, which oppose new regulations enacted in the name of climate change. It is notable, for example, that Richard North – fellow of the Institute for Economic Affairs – carried out the research for *The Sunday Times* article on the Amazon discussed above.<sup>17</sup> Meanwhile, former Conservative Chancellor, Nigel Lawson – who founded the climate sceptic organisation, the Global Warming Policy Foundation<sup>18</sup> – is frequently invited to give his views in the media. That is not to say that all climate sceptics are free-market champions, but without this very powerful lobby it is unlikely such a media storm would have been created. SGR has also highlighted the powerful role of the oil industry in supporting free-market think tanks in their promotion of climate sceptic ideas over the last two decades.<sup>19</sup>

How much has this corrosive media coverage undermined public belief in climate change, and support for action to tackle it? Results of recent opinion polls provide some interesting answers. One conducted in early 2009 by the University of Cardiff and Ipsos Mori showed that, while public concern about climate change has fallen, it was nevertheless still high – over 70%.<sup>20</sup> In addition, only 20% believed there was serious disagreement among scientists over whether climate change is caused by humans. Another poll, commissioned by BBC News at a similar time, showed that the increase in doubt over global warming was due to the cold winter and not the scientific controversies.<sup>21</sup>

## Conclusions

Reports in the mainstream media in the UK over the past year or so have given the distinct impression that evidence for the threat of climate change is less than clear. But an investigation of the facts behind the headlines, coupled with an examination of the academic research, reveals that this is anything but the case. While significant uncertainties in the science do exist, the defining aspects of the problem – that climate change is happening, that it is mainly caused by human activities, and that it is likely to have very serious impacts if left unchecked – remain solidly backed by the data.

Nevertheless, it is clear that attempts to discredit the science of climate change will continue. Although sceptics have had limited success so far, with more unusually cold weather this winter in the UK, their hand will be strengthened. Hence, organisations like SGR need to continue to challenge unbalanced media coverage. Meanwhile, although the basic evidence is robust, climate scientists do need to deal with some of the weaknesses in their research activities – especially concerning openness with data. These actions will allow us to overcome misinformation and thus keep up the pressure on policy-makers to take the necessary action to bring about a rapid reduction in greenhouse gas emissions.

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