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Reconstructing boundaries and reason in the climate debate

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ABSTRACT

In this article I argue that the climate controversies of 2009 and 2010 should be seen as a contest about the boundaries of science; a contest which sociologists argue has long been important in establishing claims about the nature and authority of science. This boundary typically comes under pressure where science is asked to contribute to public policy. Three changes appear to have brought pressure on this boundary, and therefore on the authority of science, in the domain climate change: public scrutiny of practices in science, such as peer review; the intensification of climate politics, especially around the 2009 Copenhagen climate summit; and the opportunities provided by new media for dissident opinions to play a role in the international public discourse about climate change. These changes explain the intensity of the recent climate controversies. They seem to confront climate science and science generally with uncomfortable questions about its own procedures, about the status of scientific knowledge claims in the public realm and about the role of expertise. At the end of the article I speculate about how to reconstruct a more open and interactive boundary between science and public discourse as a basis for more reasoned debate about climate change.

1. Introduction

Science has many uses; but it does not always lead to more reasoned public debate. This is the bitter lesson that the linked controversies surrounding the publication on the Web of e-mails illegally accessed from the Climatic Research Unit (CRU, November 2009) and errors revealed in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, January 2010) have taught environmental researchers. While it is still too early to provide a full account of these controversies (they are still unfolding), or to assess their potential consequences, it is already clear that these two cases mark a significant moment in the international climate debate. It is important to see the CRU and IPCC cases as illustrations of a long-standing debate about the authority of science, and about the relationship between science, policy and public discourse. They are not a cause of this debate, but a symptom of a current phase of it. But even though the challenges they represent are not new, the controversy they have generated does appear to have profound implications for the practice of climate science (in the broadest sense), for the status of expertise and for the ways in which knowledge claims about climate change are contested in the public arena. Climate science needs to understand what has happened in order to learn and to adapt.

In this short article I argue that the climate controversies of 2009/10 can be seen as a contest about the boundaries of science and society, which sociologists argue has long been important in establishing claims about the nature and authority of science, and which typically come under pressure where science is asked to contribute to policy. I start by briefly describing the two separate, but related, controversies surrounding the CRU and the IPCC. I then argue that three changes have occurred that explain why these controversies have come to symbolise a deep challenge to the boundaries between climate science, and the broader public and political discourse about climate change. First, science practice has been opened to public scrutiny. Second, climate politics intensified around the 2009 Copenhagen climate summit. And third, the Internet and the Web have enabled important new voices to play a significant role the climate debate. These changes appear to be shifting the boundaries between science and society, with consequences for scientific norms, attitudes and practices. At the end of the article I speculate on what these shifts might mean for climate science and policy.

2. Contested boundaries

Following Gieryn et al. (1985), Jasanoff (1987) argued that much of the authority of science in the twentieth century rested on the claim that science alone could provide an authoritative picture and explanation of reality. This claim rested on a belief that Mertonian norms operated in science, generating practices that ensured openness, objectivity, disinterestedness and scepticism.

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The exclusivity accorded to scientists was jealously and successfully guarded, underpinning the public image of science and warding off competing claims from religion, pseudo-science and lay experts. But Jasanoff also makes clear that the authority of science is endangered when scientists are called upon to participate in public policy, and in the public discourses that surround it.

> 'Regulation of risks to health and environment. . .involves issues at the frontiers of current scientific knowledge, where consensus among scientists is fragile. Both science and regulation seek to establish facts. But the adversarial processes of rule-making. . .presume that 'truth' emerges from an open and ritualised clash of opinions rather than from the delicate and informal negotiations that characterise fact-finding in science. . .The policy process, however, simultaneously casts doubt on the disinterestedness and the certainty of science.' (Jasanoff, 1987: 197–198).

Sociologists and historians have long been critical of the idea that Mertonian norms held in science and that science has an uncontested authority in society. Instead they argue that much effort is put into defending the boundaries between science and society. Nevertheless, the image that many scientists, politicians and publics have of science continues to draw on the classical notions of disinterested, organised scepticism.

The recent controversies about climate change operate across a continuum of the boundary between science, policy and public discourse, and it is important to distinguish between them. The CRU case relates to the practice of science itself, and only marginally to its interaction with policy. The IPCC case concerns the practice of an international assessment expressly designed to act as a bridge between science and policy making. While the CRU case goes to the authority of science, the IPCC case deals with the ways in which scientific knowledge claims are framed and condensed as they are translated into the public realm. In both cases, the provenance of the original allegations remains unclear at the time of writing, but that they precipitated a very public, global controversy about climate change and science is beyond doubt.[1]

3. The CRU case

The CRU[2] case concerns about 1000 e-mails sent by researchers at CRU in the period 1996–2009, which were illegally made public, fuelling allegations about the integrity of the institute's work, the reliability of climate science generally and the conclusions of the IPCC (Russell, 2010). The e-mails covered a wide range of issues, but in the course of a debate conducted in the Press and media, in a diversity of internet blogs and in a series of UK parliamentary and university enquiries (House of Commons Science and Technology Committee, 2010; Oxburgh, 2010; Russell, 2010), the lines of controversy crystallised around four sets of issues: access to data by critical scientists; the interpretation of palaeoclimatic data; the operation of peer review; and question of influence of the IPCC assessment process.

The allegations suggested that the behaviour of CRU scientists contravened at least three of the Mertonian norms: communalism (in not demonstrating full openness and transparency); disinterestedness (in attempts to bias findings towards pre-existing beliefs or commitments); and scepticism (in intervening in the fair operation of peer review). For this reason they represented a deep challenge to the credibility of CRU's work and, by extension, to climate science in general. Although the Science and Technology Committee, Oxburgh and Russell reviews all found that CRU scientists had been honest and rigorous, they also found that CRU scientists had not displayed a proper degree of openness (Russell, 2010: 11). It seems likely that the public perception of the affair will be more critical than the formal reviews. A leading British journalist, Fred Pearce, commenting on the Russell review, argued that CRU had been, '. . .generally honest but frequently secretive; rigorous in their dealings with fellow scientists but often "unhelpful and defensive"; and sometimes downright "misleading" when explaining themselves to the wider world' (Pearce, 2010: 7). Whether this is a fair assessment is perhaps less relevant than that it is a perception that is likely to endure.

4. The IPCC case

The IPCC case relates to publicity in early 2010 about a number of errors in its Fourth Assessment Report published in 2007 (IPCC, 2007). While a range of errors have been alleged in various media, the most significant concerned a statement in the Asian regional chapter of the Working Group II report (Impacts, Adaptation and Vulnerability) suggesting that Himalayan glaciers could disappear by 2035 and perhaps sooner (IPCC, 2007, WG 2: 493). The IPCC errors case also produced a series of official reviews. To date the most significant has been an assessment of conclusions based on the IPCC Fourth Assessment regional chapters carried out by the Dutch Environmental Assessment Agency for the Dutch Minister of Environment (PBL, 2010). A further review is being carried out on behalf of the IPCC itself by the InterAcademy Council[3] and is due to report in late 2010.

The IPCC controversy was also complex and messy. A range of issues were at stake, including the reliability of statements made in the assessment reports, the transparency with which statements were underpinned by evidence from the scientific literature, the role of expert judgement in assessing the scientific literature, and the thoroughness of the IPCC's own peer review procedures. Given that the IPCC has come to be seen as the key global assessment of the state of knowledge about climate change, it can be viewed as an enactment of the boundary between science and the public realm; at once establishing the authority of science in the climate debate while designed to inform and influence that debate with scientifically validated knowledge claims.

In another parallel with the CRU case, the official PBL review found the IPCC's conclusions to be '. . .well founded and none were found to contain any significant errors' (PBL, 2010: 9). Nevertheless, the PBL review argued that more care should be taken in future to make the scientific foundations of summary statements more transparent; thereby questioning the role of expert judgement. Behind this, and other criticisms that have surfaced about the IPCC, lies the allegation that experts taking part in the IPCC assessments were not always fully disinterested, but that they chose to privilege certain evidence over others with the aim of supporting the main claim of the fourth IPCC report: that anthropogenic forcing of the climate is very likely the cause of observable changes in climate that generate impacts which will be serious for many societies and places globally. In this controversy too, the Mertonian norms of communalism, disinterestedness and scepticism appeared to be at stake.

5. What changed?

There continues to be a widely held view among scientists and amongst the public and politicians that science, as an institution

[1] Oreskes and Conway (2010a) argue that a small group of eminent dissident scientists with links to right-wing US think tanks have been at the heart of attacks on science underpinning health and environmental policy over the past 25 years or so.

[2] The Climatic Research Unit (CRU) at the University of East Anglia (UK) is a small research institute that has played a leading role developing climate science over 30 years, particularly in developing global temperature records.

[3] An international consortium of national academies of science.