

most important documents that the IPCC produces, and try to make them live up to their titles. □

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COMMENTARY:

The IPCC in an age of social media

Leo Hickman

How should the IPCC communicate its findings, not just to policymakers, but to a wider audience? In today's online environment, readers demand an open and transparent interaction, but the responses must be both rapid and authoritative. As the IPCC debates its future, it must be bold in engaging with social media.

In September 2013, the IPCC published *The Physical Science Basis*, the Working Group I contribution of the IPCC's Fifth Assessment Report (AR5)¹. The 1,552-page report was 6 years in the making and the collective work of more than 600 scientists². Its headline findings were reported around the world³: "Warming of the climate system is unequivocal"; "Human influence on the climate system is clear"; and "Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system."

A week later at a two-day conference held at the Royal Society in London, scientists gathered to discuss the findings and also to debate possible next steps for both the IPCC and climate science more broadly. Sir Mark Walport, the UK government's chief scientific adviser, told the audience that "science is not finished until it's communicated"⁴. To reinforce his point, he projected one of the report's complex figures on a screen. "We can't show graphs like these," he said.

Walport was highlighting a problem with the IPCC that has long been discussed by journalists, civil society representatives and even many scientists themselves: how do you best communicate the IPCC's often dense, highly technical findings, not just to policymakers, but to the wider world?

The Summary for Policymakers, or SPM, has been the IPCC's vehicle for doing so. A team from each working group is tasked with boiling their full report down to a summary document, which is then further refined by (with the involvement and approval of the report's co-chairs) and unanimously 'accepted' by government representatives from across the world. In addition, each assessment report concludes with a synthesis, which presents the key findings from each working group in one publication. The world's media — as well as various other organizations, such as NGOs — then report and disseminate these findings to a wide variety of audiences.

This system of summation largely worked well in the period from the first IPCC report in 1990 up to the fourth in 2007, when the IPCC gained global recognition and attention as it was jointly awarded the Nobel Peace prize with Al Gore. Over that period, policymakers and the public gradually 'woke up' to the topic of climate change, and the IPCC reports played a considerable role in this awakening.

This same period also saw the rise of the Internet as a means of disseminating vast volumes of digital data. By the mid-2000s, the Internet had also started to facilitate peer-to-peer mass communications, with services such as MySpace, Flickr,

Youtube and Facebook. Everyone with an online connection then had a voice and a means to project it via the 'social network'. Underneath online articles, readers could also leave comments. There was a sense that the Internet was undergoing a profound wave of democratization.

There is a lively debate on whether or not this is the case — but whether it is accurate is almost beside the point. What is significant is that there is now an expectation of democratization among online audiences. People want to have their say and, in addition, expect a response. At *The Guardian*, where I worked from 1997 to 2013, journalists were explicitly told to 'engage' with readers who were now leaving comments, sometimes in their thousands, under articles. Some of my colleagues found this to be profoundly challenging and unsettling. Others, such as myself, found it to be an exhilarating, if sometimes bruising, experience. This new open and interactive relationship quickly shaped and influenced the way many journalists worked. It heralded a new era of transparency and accountability. If you made a mistake, or argued a point poorly, your readers would be quick to correct you — and often relished doing so. In some respects, journalists were now engaged in a crude form of peer review, where their readers were very much their

equal. The subsequent popularity of Twitter, in particular among journalists, has only further cemented this advance. It is now very hard for any journalist to 'hide' from or ignore anyone with a query or gripe. The comfort, safety and, to some extent, arrogance of the ivory tower is no more.

And so it should be, too, for the IPCC. In the period since the IPCC's fourth assessment report in 2007, the organization has come under intense scrutiny and, in some cases, hostile attack. If the IPCC had been far more open, transparent and responsive during that period then it might have been able to avoid, or at least dilute, much of this negative examination. More importantly, perhaps, it might have been able — in answering Sir Mark Walport's point — to "communicate the science" better to a wider variety of audiences.

To be fair, the IPCC's governing principles do not explicitly say that it needs to "communicate the science". The document says⁵: "The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation." The IPCC did, however, produce a Communications Strategy⁶ in 2012 following recommendations first published in 2010 by the InterAcademy Council⁷. Its strategy stated that the IPCC has two main communications goals:

- To communicate its assessment findings and methodologies, by providing clear and balanced information on climate change, including scientific uncertainties, without compromising accuracy;
- To explain the way the IPCC works, selects its authors and reviewers, and produces its reports and other products. This will promote the understanding of the reports and underpin its reputation as a credible, transparent, balanced and authoritative scientific body.

The document went on to specify that the IPCC's communications must address four main groups of activities, including "day-to-day communications, both proactive and reactive" and "rapid responses, which require particular procedures to ensure they are handled in a timely manner that is representative of the whole [IPCC] panel".

Importantly, the document also set out the IPCC's intended audiences:

- The primary target audiences of the communications efforts of the IPCC are governments and policymakers at all levels (including the UNFCCC).



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- Broader audiences, such as the UN, IPCC observer organizations, the scientific community, the education sector, non-governmental organizations (NGOs), the business sector and the wider public, also have an interest in the work and assessments of the IPCC. While these are not primary audiences of the IPCC communications efforts, the IPCC should look for ways to ensure that information is available and accessible for these audiences.

The IPCC should be applauded for having produced such a strategy. But their strategy urgently needs updating to better reflect the online communications environment it now operates within and seeks to influence. For example, the IPCC has operated Twitter and Facebook accounts for several years, but neither provides much in the way of reactive interaction with its audiences. These are limited and challenging environments in which to communicate complex science, but if the IPCC is to prove that it is open, reactive and transparent, it must move with the times and communicate effectively online. There are three broad ways in which the IPCC could set out to achieve this.

First, the IPCC must be available online 24/7 to respond to queries and rebut misinformation. As the IPCC saw during 2009–2010, with the rumbling affair caused by the theft of private emails between climate scientists from servers at the University of East Anglia, UK, dubbed

'Climategate', (mis)information moves fast in the online world, so immediate and authoritative responses are required. Practically, this could be achieved by developing a rota of IPCC co-chairs and lead authors who take charge of particular social media channels for short periods of time.

Second, these IPCC representatives must receive social media training. Scientists are not trained communicators, and social media is a different beast from (the perhaps more familiar) legacy media. Nonetheless, some scientists and scientific organizations have proved themselves effective social media communicators^{8–11}, and this expertise is valuable to the scientific community as a whole. As well as training, scientists must receive support (including recognizing the required time commitment) from their home institutions in undertaking these essential scientific responsibilities.

Third, any IPCC representative must actively engage in dialogue through these Web 2.0 channels. It is not enough to publish IPCC reports online and then sit back and expect the wider world to read them in their entirety. And likewise, although the IPCC Youtube channel¹² and its various social media accounts are welcome developments, they are largely run as passive one-to-many engagement exercises. A fully engaged and active IPCC Communications Strategy would see the IPCC scheduling regular interactive sessions on online platforms such as Google Hangouts, Reddit AMAs (ask me anything) and even its own website in

which co-chairs and lead authors are available to field queries. A published calendar of such events could cover a wide range of specialisms and areas within climate science. These events should happen throughout the IPCC cycle, not just when a report is released.

Last, the IPCC as an institution should re-evaluate its Communication Strategy to fully account for its audiences. It is a mistake to think that the audience is largely limited to policymakers — a cursory glance at both legacy and social media coverage of AR5 indicates that the IPCC engages diverse audiences¹³.

This year, 2015, will be an important year as the IPCC debates not just the focus, scope and scale of its reports, but also its very future. Signs from the IPCC Task Force are promising: a document released in September 2014 gave a litany of suggestions that could increase engagement of online audiences, including developing interactive web-based tools, graphics and videos; hiring infographic specialists to assist with developing figures; user consultation to gain insights into how the IPCC might better tailor its products

to user needs; reporting divergence of viewpoints; opening the SPM plenaries to media organizations; and producing shorter, simpler and more targeted reports, or reporting that the IPCC online as a dynamic document that is updated when new evidence is produced^{14,15}. In combination with the suggestions made in this Commentary, these changes would greatly help the IPCC to become the transparent, interactive organization it needs to be in order to retain its authority, trust and relevance in the years ahead. The decision on whether to adopt such changes will be debated at the 41st Session of the IPCC, which is scheduled to take place in Nairobi, Kenya on 24–27 February. The IPCC must be bold and endorse them. □

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COMMENTARY:

Taking a bet on risk

James Painter

In the light of its potential benefits, some scientists have been using the concept of risk to frame their discussions of climate change. At the moment, the media hardly pick up on risk language, so can anything be done to encourage them?

Social and natural scientists have argued that there may be advantages in presenting the climate change challenge as one of managing risk in a context of uncertainty, at least for decision-makers and other target audiences^{1–3}. Throughout his life, Professor Stephen Schneider regularly used the everyday concept of house insurance in communicating climate risks to the public, often via the media⁴. There is strong evidence that risk language and concepts are now being used more often in the dissemination of major science-based reports, and by politicians urging action on climate change⁵.

No studies have been carried out to map the shifts over time in the relative presence of the language of risk compared with other

discourses (such as disaster or uncertainty) in the framing of the climate change challenge by the IPCC. But simple metrics applied to the IPCC Fifth Assessment Report (AR5) published in 2014–2015 compared with those used in the Fourth Assessment Report (AR4) in 2007 do suggest that a shift is happening. The word 'risk' appeared more than 230 times in the 26-page Summary for Policy Makers (SPM) for the Working Group II (WGII) report in AR5, compared with 40 times in the 22-page SPM for the WGII report in AR4.

Risk management

The specific concept of risk management was conspicuous in the communication of the AR5 WGII report. For example,

Professor Chris Field, a co-chair of WGII, explicitly used a risk framing when referring to the future impacts of climate change and the solutions available to mitigate them. He gave two reasons why such a characterization is helpful⁶: “The first is the importance of considering the full range of possible outcomes, including not only high-probability outcomes. It also considers outcomes with much lower probabilities but much, much larger consequences. Second, characterizing climate change as a challenge in managing risks opens doors to a wide range of options for solutions.”

The WGII SPM contained a risk chart illustrating high-probability outcomes such as threats to Arctic sea ice and coral reefs, and low-probability, high-impact