

Consensus? What consensus?

by John McLean

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The notion of a consensus, although it means little in science, is often used in support of the claim of man-made warming. Even quite recently we've seen reports about more than 400 people, mainly highly qualified scientists who "reject the consensus".

But what is the history of claims of a consensus and what exactly is the consensus to which these claims refer, and even more importantly, do the claims have much credibility?

CLAIMS AND MORE CLAIMS

One of the first people to mention a consensus appears to have been Al Gore who, according to Environmental News on 1 April 2000, used this expression prior to his unsuccessful bid of the presidency.

"There is **overwhelming scientific consensus** that human activity is contributing to global warming . . . which can lead to serious public health consequences . . . and extreme weather." [*My emphasis*]

At this time the IPCC's Third Assessment Report was scheduled for release in January of the next year, a full 7 months away, and when Gore made his comment either the second draft was being written or it was in the hands of the reviewers, so he couldn't have based his comments on this report.

Perhaps Gore was relying on a 1996 survey by Bray and von Storch¹ that had examined support for the claim as part of gauging the attitude and views of scientists. We'll return to this survey later but for now it should be said that only 40% of over 500 respondents expressed answers that were on the

"agree" side of a scale from "disagree" to "agree" on the question of whether climate change was mostly the result of human activity. That's hardly an overwhelming consensus by any stretch of the imagination.

Gore had aspirations as an environmentalist so maybe the comment was nothing more than political spin.

On 11 October of that same year, 2000, the UK's Guardian newspaper stated:

"Hansen and his colleagues accept the **scientific consensus** that carbon dioxide is responsible for roughly half of all man-made global warming over the last half century." ² [*My emphasis*]

The "Hansen" in question was James Hansen, the NASA employee who is well recognized for making somewhat extreme claims, and it is not beyond possibility that Hansen mentioned a consensus and The Guardian willingly paraphrased his comments.

Where Gore's consensus was about a human contribution to global warming this statement from The Guardian says that the consensus was that emissions of carbon dioxide contributed roughly half of recent warming, but as with Gore's claim there is no evidence to support the assertion.

On 26 October of the same year New York Times journalist Andrew C Revkin wrote

"Many [IPCC] panel members said that the summary represents the **closest thing to a consensus possible in science**, which is generally driven more by questioning and

¹ Bray, D and H. von Storch, (1997) Survey explores Views of 400 Climate Scientists *United Nations Climate Change Bulletin*, issue 14, 2nd quarter 1997, pp 6-7

² **Second guess on the gas**, *The Guardian*, (London, England), October 11, 2000

challenges than esprit de corps." ³ [My emphasis]

His expression, "closest thing to a consensus", spread rapidly through the English speaking world with the same or almost identical words appearing in the UK's *Guardian* ⁴ newspaper and the *Irish Times* ⁵ the very next day and in the *Sunday Age* ⁶ from Melbourne, Australia, two weeks later.

It can only be assumed that the reference was to the Summary for Policy-makers of the WG I component of the IPCC Third Assessment report. The principal claim in this document was "Most of the observed warming in the last 50 years [to 2001] is likely to have been due to the increase in greenhouse gas concentrations" but that's a subtle shift on the quotes noted earlier.

Revkin says that the comments came from IPCC members. They, like the members of the UNFCCC, are government representatives. Most of those governments had already signed and ratified the Kyoto Agreement so support from this quarter for the claim that most of the warming was man-made is hardly surprising.

On 12 November 2000 the then chairman of the IPCC, Robert T Watson, started to provide official approval for the claim. His address to the 6th conference of UNFCCC parties contained the statement

"The **overwhelming majority of scientific experts**, whilst recognizing that scientific uncertainties exist, nonetheless believe that human-induced climate change is inevitable." ⁷ [My emphasis]

³ **A Shift in Stance on Global Warming Theory** Andrew Revkin, *New York Times* Oct 26, 2000 pg. A22

⁴ **Earth will get hotter than expected** *The Guardian*, (London, England) October 27, 2000

⁵ **Study finds global warming is greater than predicted UN panel** *Irish Times*, (Dublin, Ireland) October 27, 2000

⁶ **All together in the Greenhouse** (editorial), *The Sunday Age*, (Melbourne, Australia) Nov 12, 2000

⁷ IPCC document <http://www.ipcc.ch/graphics/speeches/robert-watson-november-13-2000.pdf>

This was repeated about a week later when he said to the same conference

"As you debate the weighty issues associated with effective implementation of the Convention and the Kyoto Protocol let me remind you that the **overwhelming majority of scientific experts**, whilst recognizing that scientific uncertainties exist, nonetheless believe that human-induced climate change is already occurring and that future change is inevitable." ⁸ [My emphasis]

That conference went into limbo and resumed in July 2001 and Watson was there again, reiterating his claim.

"The **overwhelming majority of experts** in both developed and developing countries recognize that scientific uncertainties exist, however, there is little doubt that the Earth's climate has warmed over the past 100 years in response to human activities and that further human-induced changes in climate are inevitable." ⁹ [My emphasis]

Again the consensus, which is now expressed as "an overwhelming majority of experts", has shifted ground. Now it is a belief that human activity has influenced climate for the last 100 years and that further human-induced changes will occur.

Watson, like those before him, provides no evidence to support his assertion. Maybe he read Revkin's article because Watson was from the USA. Maybe Watson is trying to imply that some kind of survey was taken either among the climatology community at large or among the authors and reviewers of the IPCC report.

The former is unlikely because the 1996 survey by Bray and von Storch had asked no questions that correspond to these two

⁸ IPCC document <http://www.ipcc.ch/graphics/speeches/robert-watson-november-20-2000.pdf>

⁹ IPCC document <http://www.ipcc.ch/graphics/speeches/robert-watson-july-2001.pdf>

issues. The latter alternative is also unlikely because the IPCC has no defined procedures for taking surveys of its authors and reviewers and the only large group to assemble in one place is the plenary that approves reports prior to their publication.

Later we will look in more detail at notions of consensus in the context of the IPCC's Assessment reports but for now it looks like Watson's statement was yet another assertion without foundation.

SURVEY BY BRAY AND von STORCH

Earlier it was mentioned that Bray and von Storch¹⁰ conducted a survey of climatologists and meteorologists. These surveys, one in 1996 and a follow-up survey in 2003, sought opinions about the current level of understanding of climate science and if and how climate matters should be addressed.

Respondents were asked if climate change was mostly the result of anthropogenic (i.e. man-made) causes and were asked to respond on a scale of 1 ("strongly agree") to 7 ("strongly disagree"). In 1996 40% of the 539 respondents agreed to varying extents, 14% were neutral and 44% disagreed with the statement (and 1% failed to respond). In the 2003 survey the respective figures were 58%, 13% and 29% respectively (and 5% missing).

Bray and von Storch asked if climate change was *mostly* the result of human forces so it might be argued that that anything less than, or even perhaps including, "strongly disagree" concedes that there is some human influence on climate.

But does the widely acclaimed consensus refer to *any* human influence or does it refer to a *substantial* human influence on climate, for example the claim that more than 50% of recent climate changes can be attributed to human activity?

Most scientists concede that the physics of the situation indicates that some warming is to be expected as the concentration of

carbon dioxide increases, but they also acknowledge that there are many uncertainties that prevent the accurate calculation of the extent of that warming and that at the present level of knowledge, no change in temperature or even cooling cannot be ruled out.

There's a world of difference between believing that human activity contributes less than 5% of temperature increases and saying that it contributes more than 95% but both would imply that there is *some* influence.

In the context of the earlier claims we must also ask what constitutes an *overwhelming* consensus. Is it 80% of the "voters", regardless of the form a "vote" might take, or is it 90%? How about 66%? Can we say that opposition by just one-third is overwhelming support for a claim? And in all these cases we are talking about beliefs rather than factual evidence, so it's all very ephemeral.

LITERATURE SURVEY BY ORESKES

No investigation of a consensus would be complete without mention of the essay, not a peer-reviewed paper, by Naomi Oreskes¹¹ in December 2004. In her article she described how she searched for the term "climate change" (corrected two weeks later to "global climate change") among papers published in scientific journals from 1993 to 2003 and from the 800+ papers in which that expression was found she failed to find any that she considered refuted "the consensus" of man-made warming.

Oreskes says

"In its most recent assessment, IPCC states unequivocally that the consensus of scientific opinion is that the Earth's climate is being affected by human activities: 'Human activities ... are modifying the concentration of atmospheric constituents ... that absorb or

¹⁰ Bray, D. and H. von Storch, (2007), The Perspectives of Climate Scientists on Global Climate Change, GKSS, Nov 2007 (online at http://dvsun3.gkss.de/BERICHT/GKSS_Berichte_2007/GKSS_2007_11.pdf)

¹¹ Oreskes, N (2004), Beyond the Ivory Tower: The Scientific Consensus on Climate Change", *Science*, 3 Dec 2004, vol 306, no 5702, p 1686 (and online at <http://www.sciencemag.org/cgi/content/full/306/5702/1686>)

scatter radiant energy. ...[M]ost of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations.'

Oreskes says she is quoting the Technical Summary to the Working Group 2 report, "Impacts, Adaptation and Vulnerability" but the only explicit use of the word "consensus" in that document is a claim about worsening food security. That word also does not appear in the Working Group I Summary for Policymakers, which is the most obvious location for such a claim. As we will see shortly, there is little evidence of a consensus on climate within the IPCC and the fundamental consensus, about the text of a report, is made by very few people.

It is not my intention to evaluate every paper in the Oreskes study because such action would be subjective and distorted by one's bias and interpretation. Even without a comparative study there are good grounds for considering that the work was highly biased and that the article deserves little credibility.

Oreskes has said that the search term "global climate change" was used in order to avoid papers that dealt with regional climate issues. This filtering immediately introduces a bias because it disqualifies any work that concentrates on a region with a significant shift in climate that might have been caused by a global phenomenon or otherwise might be a microcosm for a global situation.

The search term is more the rhetoric of those who are investigating global influences on climate, some might say the rhetoric of "scientists-activists" who wish to impress with words rather than high quality science because the term "climate change" has been corrupted into a euphemism for man-made warming. It is not likely to be a term used by those who investigate the integrity of the key temperature records, variations in cloud cover, the influence of cosmic rays, variations in possible solar influences, or even in determining the factor for converting a quantified change in radiation into temperature. It is a stilted and unlikely sentence that says, "Errors in the temperature record give the illusion of global climate change".

Oreskes also appears to assume a level playing field for those who agree with her claimed consensus and those who don't. Such an assumption is patently false.

Research funding is now directed towards projects that are likely to produce benefits is now; "value for money" is the catchphrase. The involvement of governments in the IPCC process and the implicit support of its claims, seen in governments' positions on the Kyoto Agreement and in policies on climate matters, makes it abundantly clear that governments will very readily fund climate research in directions determined by IPCC.

Bray and von Storch's surveys illustrate this in the responses to a question about "growing pressure for climate research to be justified in terms of policy relevance" that only about 10% of those questioned in each survey rejected. In similar fashion the question of a substantial influence of the IPCC in deciding research areas was rejected by only around 10% and fewer than 1 in 5 considered that climate research had *not* been influenced by external politics.

The funding is towards pro-IPCC studies and the scientists are not foolish, they know what is expected of them if they and their institutions are to stand a good chance of receiving funding.

Funding is only part of the battle because if by some chance a project skeptical of man-made climate change receives funding and writes a credible paper, that paper has to pass peer review and be published.

That's no easy task because the reviewers are likely to be climatologists working on projects aligned to the IPCC's thinking for the reasons given above. The reviewers can't very well go against the funding stream and support papers that refute the populist claims. The journals themselves are no help either because several have explicitly announced their positions ("The science is settled," declared editor-in-chief of "Science", Donald Kennedy, in 2002) or they send the papers to reviewers who are likely to reject them.

The community derides the few journals that publish papers skeptical of a human influence on climate and any credibility those papers may have is stripped away by virtue of the journal in which they appear.

Any other journal that breaks ranks from its pro-IPCC colleagues and attempts to redress the imbalance is likely to receive similar approbation.

On top of that a number of new journals have appeared that, by their titles or by the types of papers they publish, are supportive of the IPCC's claims. This has increased the number of outlets for pro-IPCC papers but not for skeptical papers.

Oreskes declared that she found no papers that refuted the consensus that she claims is about a human influence on climate. In fact it was her search method, combined with the extreme difficulty of obtaining funding and then publishing skeptical papers, that grossly skewed her work towards certain results.

She claims that there is a consensus, but does her work confirm that it is one of a human influence on climate or is it merely a consensus as to the position that scientists should take in order to obtain research funding, to have good opportunity to publish papers and to enhance one's professional standing?

An even bigger question is whether we would now receive honest answers in a survey that attempted to ascertain if a consensus did exist. Bray and von Storch have attempted to do so by anonymous surveys but are accused of presenting an ill-defined list of possible responses and relying heavily on self-assessment.

Regardless of the method used, perhaps people would now be unwilling to contradict their stated positions or maybe human nature has now transformed into a belief what was once a deliberate decision to support a particular viewpoint.

THE IPCC

It seems widely believed that the IPCC undertakes a vast amount of research and employs a huge number of scientists that all write, review and reach consensus on every word of its reports. Little could be further from the truth because it relies on the findings of research by others and the task of writing is devolved into a multi-layer operation.

Each chapter has Coordinating Lead Authors (CLAs) who have authority across the entire chapter. Lead Authors (LAs) deal with specific sections of chapters and they merge the input from the Contributing Authors who responded to invitation of the Lead Author and submitted material pertaining to their areas of expertise.¹² The number of contributing authors on any topic will not be great because of the sheer logistical problem of handling the different submissions.

The text that appears in any section of any chapter of the IPCC Assessment Reports is essentially the consensus of probably fewer than 10 authors - the "Chair" (i.e. head) of that Working Group, the CLAs and the LAs and an unspecified number of contributing authors. To imply or assume that all authors for any chapter agree with every word of that chapter is simply wrong.

Expert reviewers in the relevant subject area examine the first and second drafts of the reports from each working group. The IPCC's expert reviewers have differing areas of expertise so every reviewer does not examine every word of every chapter of every report. An average of 65 reviewers commented on each chapter of the second order draft (i.e. penultimate draft) of the Working Group I report, with the number ranging from 32 to 100.¹³

The IPCC reviewers are not "peer reviewers" in the normal sense because with few exceptions - although sometimes critically - the material cited in the IPCC reports comes from peer-reviewed journals although the quality of those preceding peer reviews is sometimes debatable. The IPCC review process only addresses whether the text that appears in the draft is an accurate summary of the knowledge reported in the input material. Apart from the more mundane corrections to spelling, grammar and citations the reviewers may call for rejection of material, additional wording and the inclusion of other material.

Reviewers can and do object to passages of text but have little opportunity to respond

¹² IPCC document
<http://www1.ipcc.ch/pdf/ipcc-principales/ipcc-principales-appendix-a.pdf>

¹³ see
http://mclean.ch/climate/IPCC_review_updated_analysis.pdf

to how their objections were dealt with. Only a reviewer of both the first and second drafts of the IPCC's Fourth Assessment Report would have such an opportunity. The absence of any review of the final draft means that the reviewers cannot be assumed to concur with it and they cannot be automatically included in any "consensus".

For both stages of review the CLAs and LAs (and review editors) are the textual "gatekeepers". Unlike with a peer-reviewed paper in a journal they are under no obligation to modify the text in response to the reviewers' comments.

The final draft of the report from each Working Group is presented to a plenary of government representatives for approval. According to people who have attended such sessions, the coordinating lead authors defend the draft of the text and the chair of the working group typically requires substantial justification from the plenary attendees before the text is altered. This process seems more like reluctant acquiescence than staunch support for the consensus of the authors.

An average of 25% of reviewers' comments were rejected for each chapter of the second draft of the Working Group I report with a minimum rejection rate of 9.5% of reviewers' comments in one chapter and a maximum 58.1% for another.

As part of the normal IPCC procedure the drafts of each chapter are sent to all authors so that they might review it. On the assumption that this only means all authors of the chapter in question rather than all authors of all chapters, it appears that the 56 authors of the crucial 9th chapter of the Working Group I report, the chapter in which human activity was blamed for recent warming, were given the opportunity to review the second draft.

Review comments were also invited from the approximately 190 governments that are members of the United Nations.

From the almost 300 individuals or governments that were given the opportunity to do so only 62 reviewers in all - 7 chapter authors, 8 government reviewers and 47 individuals - commented on that chapter and of those 62 just FIVE

expressed support for the chapter as a whole¹⁴.

Among the IPCC's expert reviewers of this chapter, the majority of whom came from the fields of meteorology or climatology, there was *no* consensus in support of the claim, made by probably fewer than 10 authors, of man-made warming.

The only consensus within the IPCC came from a plenary of government representatives and they only reach a consensus on whether the report is an accurate summary of knowledge at the present time, not whether the report contains irrefutable evidence of a human influence. We know little about the scientific expertise and possible personal biases of these representatives but we do know that most governments have signed and ratified the Kyoto Agreement and incorporated it into government policy, so a consensus that supports the views of governments is hardly any surprise.

Sometimes one reads or hears of a total of 2500 reviewers supporting the consensus. Almost 1900 of these reviewers commented on the reports from Working Groups II and III, which looked at impacts, adaptation and mitigation rather than the fundamental question of a human influence.

In theory the WG II and WG III reports were based on the findings of the WG I report but in practice all 3 reports were developed in parallel. That means the key WG I findings were very largely decided long before its report was finalized and long before any consensus even had a chance of being created. It also meant that the WG II and WG III reports locked in the findings for WG I in a case of the tail wagging the dog.

SUMMARY

At the end of the day it is a struggle to determine exactly what the supposed consensus refers to. If it applies to a *significant* human influence on climate then it seems impossible to find any credible evidence of an overwhelming consensus from experts in the relevant fields. The authors of any section of the IPCC's

¹⁴ see

http://mclean.ch/climate/IPCC_review_updated_analysis.pdf

Assessment Reports are too few in number and there was little explicit support shown by the expert reviewers. The IPCC's only evident consensus is from government representatives approving the text of documents.

The 2003 survey by Bray and von Storch showed majority, but hardly overwhelming, support for the claim. The work by Oreskes was significantly biased from the outset and based on false assumptions of equal opportunity for all researchers.

The then chairman of the IPCC Robert T Watson produced no support for his claim of an "overwhelming majority of experts" who believed that human influence was altering climate to some unspecified degree. The various media reports about a consensus that about half the warming was due to a human influence are devoid of evidence to support such claims. Back even further Gore claimed a consensus about an unspecified level of human influence but again there is no evidence for that statement.

The lack of clear evidence for a precisely stated consensus means that there's not a lot on which to hang a much-repeated claim.