This is the print version of the Skeptical Science article 'Climate science peer review is pal review', which can be found at http://sks.to/pal.

How contrarians used pal review to publish contrarian papers

What The Science Says:
The lone documented case of true 'pal review' was committed by climate contrarians in the journal *Climate Research* from 1997 to 2003, during which time editor Chris de Freitas accepted 14 papers from a select group of contrarians. The journal had not published any papers from that group of authors previously, and only published 2 more papers from the group of 'pals' after de Freitas left.

Climate Myth: Climate science peer review is pal review
"Peer review has become ”pal review.” Send a paper to one of the very many journals published by the American Geophysical Union–the world’s largest publisher of academic climate science–and you can suggest five reviewers. The editor doesn’t have to take your advice, but he’s more likely to if you bought him dinner at the last AGU meeting, isn’t he? That is, of course, unless journal editors are somehow different than government officials, congressmen, or you." (Patrick Michaels)

We often hear claims from climate contrarians that climate scientists are guilty of what they describe as "pal review." The conspiracy theory goes something like this - climate scientists conduct biased research with the goal of confirming the human-caused global warming theory. They then submit their biased results to a peer-reviewed journal with friendly editors ("pals") who pass their paper along to friendly reviewers (other "pals") who give their fraudulent work the green light for publication. Thus, the contrarians argue, the preponderance of peer-reviewed literature supporting human-caused global warming is really just a sign of corruption amongst climate scientists.

However, while climate contrarians are never able to produce any evidence to support their conspiracy theory, John Mashey has thoroughly documented a real world example of true pal review. Contrary to the standard conspiracy theory, the pal review did not involve mainstream climate scientists, but instead the climate contrarians themselves.

The True Story of Climate Research Pal Review

Mashey has done an excellent job documenting a real life case of pal review, which happened at the journal *Climate Research* between 1997 and 2003. That particular journal was once again brought to the forefront in the recent second Climategate stolen email release.

In those emails, various climate scientists had expressed concern that *Climate Research* was publishing shoddy papers by a small group of climate contrarians, and discussed what they could do about it. The most infamous of these papers was one by Soon and Baliunas (2003) which concluded that current global temperatures are not anomalous compared the past 1,000 years. After publishing this paper, Soon was invited by Senator James Inhofe to testify before US Congress, and the Soon and Baliunas paper was used by Congressional Republicans to justify opposition to climate legislation.

However, the paper contained numerous major fundamental flaws, such as equating dryness with hotness, and was subsequently roundly refuted by an article in the American Geophysical Union journal *Eos* written by a number of prominent climate scientists. This paper, and *Climate Research*'s refusal to revise or retract it, led to the resignation of five of the journal's editors,

including recently-appointed editor-in-chief Hans von Storch, who explained the reason for his resignation:

> "..the reason was that I as newly appointed Editor-in-Chief wanted to make public that the publication of the Soon & Baliunas article was an error, and that the review process at Climate Research would be changed in order to avoid similar failures. The review process had utterly failed; important questions have not been asked....It was not the first time that the process had failed, but it was the most severe case....I withdrew also als editor because I learned during the conflict that [Climate Research] editors used different scales for judging the validity of an article. Some editors considered the problem of the Soon & Baliunas paper as merely a problem of "opinion", while it was really a problem of severe methodological flaws. Thus, I decided that I had to disconnect from that journal, which I had served proudly for about 10 years."

In short, the journal's chief editor voiced the exact same concerns as the climate scientists in the Climategate 2 emails - that certain *Climate Research* editors were systematically publishing methodologically flawed papers in their journal. Soon and Baliunas were far from the only climate contrarians to benefit from the journal's friendly editorial policy. In fact, the biggest pal review beneficiary bears a very familiar name.

Patrick Michaels and Pals

Mashey has examined the publications in *Climate Research* in great detail, and has produced a spreadsheet of its publications and a report summarizing his findings.

Prior to Hans von Storch's promotion to *Climate Research* editor-in-chief in 2003, the journal did not have a chief editor, and so authors sent their manuscripts to an Associate Editor of their choice. One particular Associate Editor, Chris de Freitas, published 14 separate papers from a select group of 14 climate contrarians during the 6 year period of 1997 to 2003:

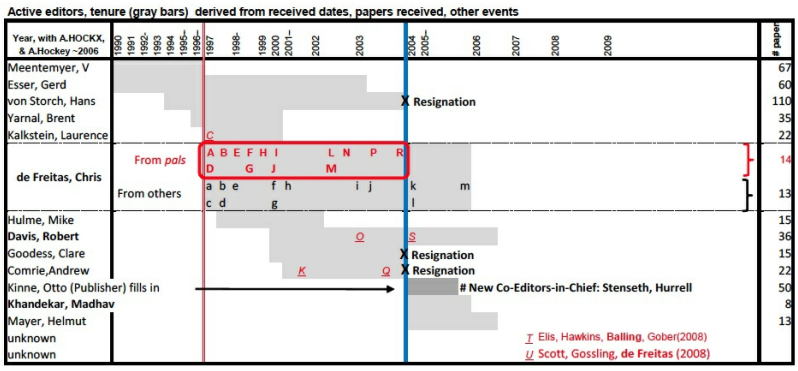
> Sallie Baliunas, Robert Balling, John Christy, Robert Davis (both *Climate Research* author and editor), David Douglass, Vincent Gray, Sherwood Idso, PJ "Chip" Knappenberger, Ross McKitrick, Pat Michaels, Eric Posmentier, Arthur Robinson, Willie Soon, and Gerd-Rainer Weber.

As Mashey shows, from 1990 to 1996, *Climate Research* published zero papers from this group. From 1997 to 2003, the journal published 17 papers from this group, 14 with de Freitas as the Associate Editor. Serial data deleter Patrick Michaels was an author on 7 of the 14 pal reviewed papers, which also accounted for half of his total peer-reviewed publications during this timeframe. During this period, 14 of the 24 (58%) papers accepted by de Freitas came from this group of contrarians. After von Storch's resignation in 2003, de Freitas published 3 more papers from authors outside this group before leaving the journal in 2006.

Another on the list of 'pals', Robert Davis, was another Associate Editor at *Climate Research* who accepted 36 papers during his tenure, two of which were co-authored by another pal, Robert Balling. The journal also published 5 other papers from this group by non-pal editors. However, in total, at least 16 of the 21 (76%) of the papers published by *Climate Research* which were authored by this group of climate contrarians had pal review editors, mostly de Freitas (67%) during this six year window.

After von Storch's resignation, Mashey documents that the pals' *Climate Research* publications dried up. Davis accepted one of Balling's papers submitted in 2004, and papers co-authored by Balling and by de Freitas were published by the journal in 2008 (Table 1). 18 of the 21 (86%) of the 15 pals' *Climate Research* publications were submitted in the 1997 to 2003 timeframe.

Table 1: Climate Research publications grouped by Associate Editor. Grey bars show approximate editor tenure as derived from received dates of papers. The "pals" papers are shown in red capitals, 14 accepted by de Freitas (bold), and 7 handled by others (red, underlined italics). De Freitas also accepted 13 seemingly normal papers from other authors (lowercase black).



Mashey also finds that the 15 'pals' were closely connected in climate contrarian activities outside of Climate Research as well, for example working for various anti-climate think tanks, most being connected with either Fred Singer or Patrick Michaels.

> "all have shown persistent involvement with organizations that do climate anti-science, most of which also have tobacco connections."

There is also substantial overlap with the pals joining together to author these papers (Figure 1).

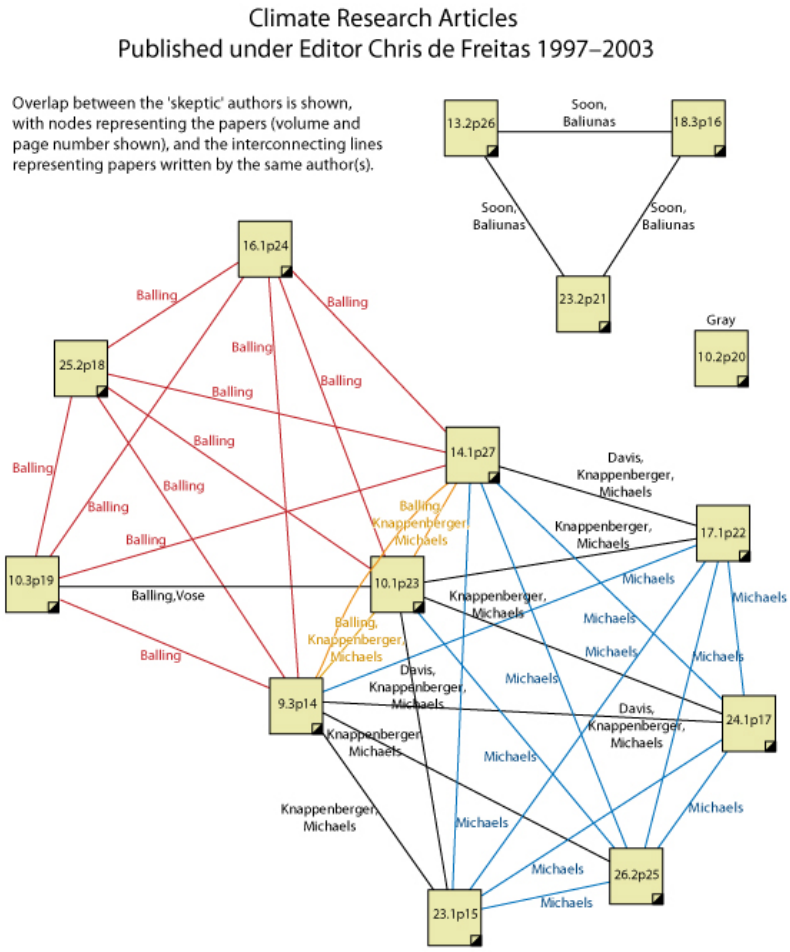


Figure 1: Overlap between pal authors of the 14 de Freitas Climate Research pal review publications between 1997 and 2003. The node numbering represents the Climate Research volume and page number of the pal publications, while the node connections represent papers written by the same pal authors (i.e. 9.3p14 and 23.1p15 were both authored by Michaels and Knappenberger). Image by jg and Kevin C.

The Purpose of the Mainstream Pal Review Myth

For those who oppose the prudent path forward with regards to climate change, which involves major global greenhouse gas emissions reductions, the scientific consensus on human-caused global warming is a very inconvenient thing. Despite the public relations damage resulting from Climategate, people still trust climate scientists' opinions about climate science (although political conservatives' trust in scientists in general has declined). However, much of the public (at least the American public) doesn't realize that there is a scientific consensus on human-caused climate change. Polls in October 2010 and September 2011 found that 44% and 37% of the American public believes that scientists are divided regarding the cause of global warming, respectively.

According to the March 2012 George Mason Center for Climate Change Communication (CCCC) national poll, climate scientists are the most trusted source for climate science information, with 74% of public trust (Figure 2). However, a large segment of the population believes there is a major scientific debate on the subject, no doubt thanks to the false media balance which gives the ~3% minority of experts who think humans aren't the dominant cause of the current climate change (and their non-expert surrogates) ~50% of the media attention. Therefore, many people don't believe that humans are the primary cause of global warming (approximately 41% of Americans).

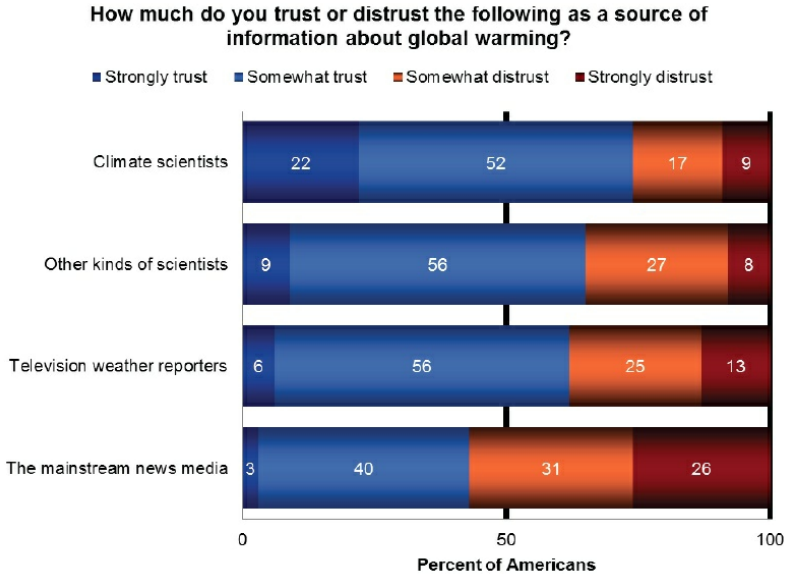


Figure 2: Responses to the George Mason CCCC poll question "How much do you trust or distrust the following as a source of information about global warming?"

The numbers reveal a stark picture: 76% of Americans trust climate scientists, but 41% think scientists are divided on the causes of the warming, and 41% think the observed warming is mostly natural.

Thus as Ding et al. (2011) concluded, if a larger percentage of people realized that there is a scientific consensus on the issue amongst the group they trust most on the subject (and rightly so), more people would believe that humans are causing global warming, and more people would demand that we do something about it. ***The lack of public awareness of the scientific consensus on human-caused climate change is one of the biggest obstacle to taking climate mitigation action***.

For this reason, climate contrarians have attacked the scientific consensus from many different angles. Some have tried to attack the credibility of the many different surveys and studies documenting the consensus. Others simply ignore this documentation and deny the consensus exists at all.

The third group, discussed in this post, attacks the credibility of the consensus itself, claiming it's all part of a massive fraudulent conspiracy of thousands of corrupt climate scientists (note

that conspiracy theories are one of the five characteristics of scientific denialism). Ironically, this conspiracy theory has been most recently voiced by pal review beneficiary Patrick Michaels.

> "Peer review has become ”pal review.” Send a paper to one of the very many journals published by the American Geophysical Union–the world’s largest publisher of academic climate science–and you can suggest five reviewers. The editor doesn’t have to take your advice, but he’s more likely to if you bought him dinner at the last AGU meeting, isn’t he? That is, of course, unless journal editors are somehow different than government officials, congressmen, or you."

Michaels of course provides no evidence whatsoever to support this conspiracy theory of peer-review corruption. He expects us to swallow his tale of "pal review" - the conspiracy theory that thousands of climate scientists are publishing thousands of biased papers every year in order to keep the human-caused global warming theory propped up - based on nothing more than his say-so.

While Michaels is indeed something of an expert on the subject, his expertise comes from himself being one of the individuals most guilty of engaging in climate research pal review.

Pal Review Summary

While Patrick Michaels has accused mainstream climate scientists of a vast conspiracy involving pal review (and exposed his own characteristic of scientific denialism in the process) without any substantiation or supporting evidence, in reality Patrick Michaels himself was the biggest beneficiary in the one actual demonstrated case of climate science pal review, as documented by Mashey.

A group of 14 climate contrarians found a sympathetic journal editor who proceeded to publish a large number of papers from this group over a very short timeframe, many of which were scientifically flawed, some of which were subsequently used by politicians to oppose climate legislation.

Ironically, the climate scientists who tried to do something about this problem have themselves been accused of trying to "hijack" or "subvert" the peer-review process. And of course the guiltiest party of all, Patrick Michaels has accused thousands of climate scientists of the sort of pal review he himself engaged in.

Our tale is one of irony, hypocrisy, and projection. The next time you see a complaint about the fairy tale of rampant climate science "pal review", direct the accuser to John Mashey's documentation of a pal review true story.

Intermediate rebuttal written by dana1981

Update July 2015:

Here is a related lecture-video from Denial101x - Making Sense of Climate Science Denial

[*see video at **this link**.*]

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Skeptical Science explains the science of global warming and examines climate misinformation through the lens of peer-reviewed research. The website won the Australian Museum 2011 Eureka Prize for the Advancement of Climate Change Knowledge. Members of the Skeptical Science team have authored peer-reviewed papers, a college textbook on climate change and the book Climate Change Denial: Heads in the Sand. Skeptical Science content has been used in university courses, textbooks, government reports on climate change, television documentaries and numerous books.

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