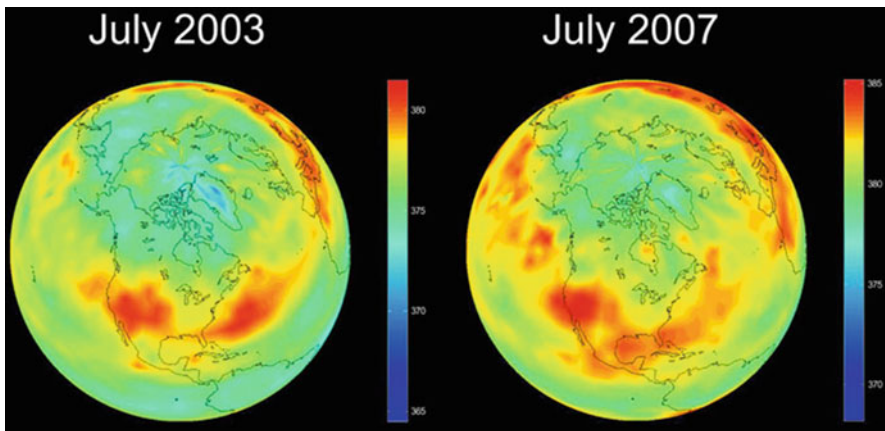


Preface

The science is in, the debate is over!



Rising global carbon dioxide levels (note slightly adjusted color gradient from left to right in order to show detail better) (Image courtesy of NASA/JPL)

If only it were that simple; such a grandiose and dramatic pronouncement about any issue would normally mean there is nothing left to discuss. However, with the highly charged nature of the subject of climate change, we will never know if this is so if we do not examine the subject in its entirety, from all sides and perspectives, and free from bias or predetermined conclusions.

There are many books about climate change. However, it is hard to find a source where concise arguments *from all sides* are presented under the canopy of one umbrella, and framed in the context of the actual research behind the findings, much less those that introduce the astronomical component. It is also easy to fall into the trap of mixing science and politics, when, in fact, the two have little in common and objectivity is easily lost. Bearing in

mind the late Senator Daniel Patrick Moynahan's perceptive and witty remark that "One is entitled to one's opinion, but not to one's own facts!" let us try to air as many facts and well-founded suppositions as possible. However, we must include at least a brief description of the various agendas relative to the discussion if we are to have a balanced perspective of the broader topic.

A finding by the Environmental Protection Agency to declare carbon dioxide and other greenhouse gases a danger to public health and welfare – and therefore subject to the Clean Air Act – “will officially end the era of denial on global warming.”

–Rep. Ed Markey, D-Mass.,

U.S. Energy & Commerce subcommittee

The author seeks neither to take a position nor evaluate the science itself, but merely to present an airing of largely unheralded, usually highly legitimate research within the context of the larger umbrella of climate science today. Every effort has been made to present information without a specific agenda or stated conclusions, and especially without the intent of manipulating or swaying the reader to any particular viewpoint. Thus, we will allow the evidence and findings to speak for themselves.

It is quite possible that much of what may be seen as radical at first glance will turn out to be quite compatible with what is already widely accepted. This could mean that perhaps no one will have to reject *all* or even *any* previously held positions. Although the basic theories of man-made climate change have wide international support, there is still much disagreement. So despite oft-repeated claims that the issue is completely settled within the scientific community, to the contrary, this is not yet the case. However, we should be extremely wary of jumping on the bandwagon of those who might perhaps be considered “kooks.”

The underlying cause of these climactic shifts is ultimately not well-understood and is a matter of vigorous debate.

–U.S. Senator Mike Crapo (R-ID),

Senate Committee on Environment and Public Works, October 2009

With the advent of climate change, aka global warming, taking center stage in the late twentieth century, a worldwide organization called the Intergovernmental Panel on Climate Change (better known as the IPCC) was established by the larger organization of the United Nations. It was structured to review and assess ongoing independent research about the prospects for future impacts on world climate, something that had increasingly come under scrutiny with warmer annual temperatures being recorded. To date, the IPCC has generated four reports: those of 1990, 1995, 2001, and 2007. Each has a designated acronym, i.e., FAR (First Assessment Report), SAR (the Second), TAR (Third), and AR4 (Assessment Report #4). The panel, consisting of members of the international scientific community from 130 countries, has made recommendations with each report about recently changing climate conditions.

The IPCC is comprised of 2,500 expert reviewers, 800 contributing editors, and more than 450 lead authors. This must surely be the largest single organization of its kind in the world. It should be noted, however, that not all of these individuals write everything in the reports, collectively. They each have their own areas of expertise and contribute to the reports accordingly. Climate science, being multi-dimensional, requires input from many of these areas. Therefore, it is unlikely that most panelists are able to be involved in many, if indeed any, of the other areas. This has led to perhaps one of the more serious criticisms that the reports do not speak with one voice. Certainly, no one voice has existed throughout the process.

The panel has not escaped other challenges and resistance to its findings. Critics charge that it has approached the task with a presumption of human-induced recent climate changes. Certainly the IPCC's own mission descriptions do seem to imply this. Critics also challenge its makeup, being merely a small fraction of the world's scientists and experts. We must assume, however, that each country has put forward some of its best and brightest, and there is obviously a limit as to how many people could be involved. Additionally, critics maintain that because any errors it has made over the years have tended to favor its position, this has only added to questions of the validity of its findings.

Any developed and geographically well-situated nation that is not willing to take action on climate change will have to be fully prepared to assist environmental refugees displaced.

—Australian Greens Senator Sarah Hanson-Young

A careful review of the documents prepared and presented by the IPCC over the years is highly instructive. These reports set the stage and describe in detail many facets of climate change science. Some readers may be surprised to read a concession that many components are still sufficiently uncertain to state definitively. However, the panel has expressed increasing levels of “confidence” that much of what we are experiencing is human-induced (anthropogenic), and that it is exceedingly likely that most of it is not natural.

Interestingly, in the most recent 2007 report (AR4), the concluding remarks may seem surprisingly short of the kind of definitive statements about anthropogenic factors that we have been led to believe were at its core. In stark contrast, however, is the *Summary for Policy Makers* that accompanied the report. This states far more clear-cut conclusions than are found in the main report. Whether this was the intent or the result of a less objective editor is not clear. One does not leave the summary without a strong sense that the most likely or worst-case scenario has been stated as a virtual certainty. Critics have been vocal about the summary for this very reason, especially since the document has been at the root of many decisions and actions taken by governmental agencies.

The government has been captured by an extreme Green agenda...incomplete and biased science.

—Australian Liberal Party senator
Cory Bernardi

In light of a prevailing view (a “consensus”) that man-made contributions have caused a large portion of the warming since 1980, it does seem reasonable to presume that a large percentage of scientists do indeed accept much, if not all, within the IPCC’s findings. We have all heard those official-sounding ratios of scientists in support of the IPCC position to be in the upper 90s percentile. Indeed, many major scientific institutions of international standing

have affirmed their support of the IPCC assessments. Apparently, to date, none has gone on record opposing it, although this is not quite the same thing as claiming all institutions actually have embraced it, let alone having spoken for everyone working under their collective umbrella. Without precise headcounts of individual scientists, it surely would be hard to gauge what any of them think, individually, as there has been no census taken. However, as we proceed, statements given in absolutes by advocates of any position should be carefully appraised.

The legend surrounding the early English King Canute comes to mind. Enthroned on the seashore, the king of legend (and of history) attempted to command back the tides. Needless to say, he ended up with wet feet. However, just for the record, apparently he was wiser than his legend has fared. It seems his intent was to demonstrate that no person, no king, had such power. Thus, Canute demonstrated to an unwitting peasant populace that it is impossible to impose anything on the natural order of things.

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