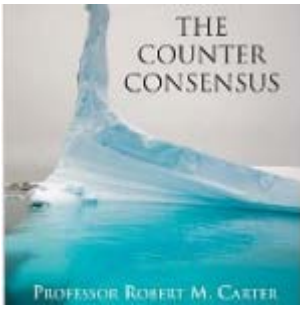


## GLOBAL WARMING: ANTHROPOGENIC OR NOT?



AN ALTERNATIVE VIEW FROM DOWN UNDER

by **Professor Robert (Bob) Carter, geologist & environmental scientist**

<http://www.aitse.org/global-warming-anthropogenic-or-not/>

Katharine Hayhoe, PhD, who wrote the December AITSE piece “*Climate Change: Anthropogenic or Not?*”, is an atmospheric scientist and director of the Climate Science Center at Texas Tech University. She is senior author of the book “*A Climate for Change: Global Warming Facts for Faith-Based Decisions*”. I am a senior research geologist who has published more than 100 peer-reviewed papers on palaeo-environmental and palaeo-climatic topics and also author of the book, “*Climate: the Counter Consensus*”. Quite clearly, **Dr. Hayhoe and I are both credible professional scientists**. Given our training and research specializations, we are therefore competent to assess the evidence regarding the dangerous global warming that the Intergovernmental Panel on Climate Change (IPCC) alleges is being caused by industrial carbon dioxide emissions.

Yet at the end of her article Dr. Hayhoe recommends for further reading the websites [RealClimate.org](http://RealClimate.org) and [SkepticalScience.com](http://SkepticalScience.com), whereas here at the outset of writing my own article I recommend the websites [wattsupwiththat.com](http://wattsupwiththat.com) and [www.thegwpcf.org](http://www.thegwpcf.org) (Global Warming Policy Foundation). To knowledgeable readers, this immediately signals that **Dr. Hayhoe and I have diametrically opposing views on the global warming issue**.

The general public finds it very hard to understand how such strong disagreement can exist between two equally qualified persons on a scientific topic, a disagreement that is manifest also on the wider scene by the existence of equivalent groups of scientists who either support or oppose the views of the IPCC about dangerous anthropogenic (human-caused) global warming (DAGW).

In this article I shall try to summarize what the essential disagreement is between these two groups of scientists, and show how it has come to be misrepresented in the public domain.

### *Common ground amongst DAGW protagonists*

Though you wouldn't know it from the antagonistic nature of public discussions about global warming, a large measure of scientific agreement and shared interpretation exists amongst nearly all scientists who consider the issue. The common ground, much of which was traversed by Dr. Hayhoe in her article, includes:

- that climate has always changed and always will,
- that carbon dioxide is a greenhouse gas and warms the lower atmosphere,
- that human emissions are accumulating in the atmosphere,
- that a global warming of around 0.5°C occurred in the 20<sup>th</sup> century, but
- that global warming has ceased over the last 15 years.

The scientific argument over DAGW is therefore about none of these things. Rather, it is almost entirely about three other, albeit related, issues. They are:

- the amount of net warming that is, or will be, produced by human-related emissions,
- whether any actual evidence exists for dangerous warming of human causation over the last 50 years, and
- whether the IPCC's computer models can provide accurate climate predictions 100 years into the future.

Dr. Hayhoe's answers to those questions would probably be along the line of: *substantial, lots* and *yes*. My answers would be: *insignificant, none* and *no*.

What can possibly explain such disparate responses to a largely agreed set of factual climate data?

### *How does science work?*

Arguments about global warming, or more generally about climate change, are concerned with a scientific matter. Science deals with facts, experiments and numerical representations of the natural world around us. Science does not deal with emotions, beliefs or politics, but rather strives to analyse matters dispassionately and in an objective way, such that in consideration of a given set of facts two different practitioners might come to the same interpretation; and, yes, I am aware of the irony of that statement in the present context.

Which brings us to the matter of Occam's Razor and the null hypothesis. William of Occam (1285-1347) was an English Franciscan monk and philosopher to whom is attributed the saying '*Pluralitas non est ponenda sine necessitate*', which translates as 'Plurality should not be posited without necessity.' This is a succinct statement of the principle of simplicity, or parsimony, that was first developed by Aristotle and which has today come to underlie all scientific endeavour.

The phrase 'Occam's Razor' is now generally used as shorthand to represent the fundamental scientific assumption of simplicity. To explain any given set of observations of the natural world, scientific method proceeds by erecting, first, the simplest possible explanation (hypothesis) that can explain the known facts. This simple explanation, termed the null hypothesis, then becomes the assumed interpretation until additional facts emerge that require modification of the initial hypothesis, or perhaps even invalidate it altogether.

Given the great natural variability exhibited by climate records, and the failure to date to compartmentalize or identify a human signal within them, the proper null hypothesis – because it is the simplest consistent with the known facts – is that *global climate changes are presumed to be natural, unless and until specific evidence is forthcoming for human causation.*

It is one of the more extraordinary facts about the IPCC that the research studies it favours mostly proceed using an (unjustified) inversion of the null hypothesis – namely that *global climate changes are presumed to be due to human-related carbon dioxide emissions, unless and until specific evidence indicates otherwise.*

***What hypothesis do we wish to test?***

Though climate science overall is complex, the greenhouse hypothesis itself is straightforward and it is relatively simple to test it, or its implications, against the available data. First, though, we need to be crystal clear about precisely what we mean by the term.

In general communication, and in the media, the terms greenhouse and greenhouse hypothesis have come to carry a particular vernacular meaning – almost independently of their scientific derivation. When an opinion poll or a reporter solicits information on what members of the public think about the issue they ask questions such as “*do you believe in global warming*”, “*do you believe in climate change*” or “*do you believe in the greenhouse effect*”.

Leaving aside the issue that science is never about belief, all such questions are actually coded ones, being understood by the public to mean “*is dangerous global warming being caused by human-related emissions of carbon dioxide*”. Needless to say, this is a different, albeit related, question. These and other sloppy ambiguities (“carbon” for “carbon dioxide”, for example) are in daily use in the media, and they lead to great confusion in the public discussion about climate change; they also undermine the value of nearly all opinion poll results.

The DAGW hypothesis that I want to test here is precisely and only “*that dangerous global warming is being caused, or will be, by human-related carbon dioxide emissions*”. To be “dangerous”, at a minimum the change must exceed the magnitude or rate of warmings that are known to be associated with normal weather and climatic variability.

### ***What evidence can we use to test the DAGW hypothesis?***

Many different lines of evidence can be used to test the DAGW hypothesis. Here I have space to present just five, all of which are based upon real world empirical data. For more information, please read both Dr. Hayhoe’s and my book.

Consider the following tests:

(i) Over the last 16 years, global average temperature, as measured by both thermometers and satellite sensors, has displayed no statistically significant warming; over the same period, atmospheric carbon dioxide has increased by 10%.

Large increases in carbon dioxide have therefore not only failed to produce dangerous warming, but failed to produce any warming at all. **Hypothesis fails.**

(ii) During the 20<sup>th</sup> century, a global warming of between 0.4<sup>o</sup> C and 0.7<sup>o</sup> C occurred, at a maximum rate, in the early decades of the century, of about 1.7<sup>o</sup> C/century. In comparison, our best regional climate records show that over the last 10,000 years natural climate cycling has resulted in temperature highs up to at least 1<sup>o</sup> C warmer than today, at rates of warming up to 2.5<sup>o</sup> C/century.

In other words, both the rate and magnitude of 20<sup>th</sup> century warming falls well within the envelope of natural climate change. **Hypothesis fails, twice.**

(iii) If global temperature is controlled primarily by atmospheric carbon dioxide levels, then changes in carbon dioxide should precede parallel changes in temperature.

In fact, the opposite relationship applies at all time scales. Temperature change precedes carbon dioxide change by about 5 months during the annual seasonal cycle, and by about 700-1000 years during ice age climatic cycling. **Hypothesis fails.**

(iv) The IPCC's computer general circulation models, which factor in the effect of increasing carbon dioxide, project that global warming should be occurring at a rate of +2.0<sup>o</sup> C/century.

In fact, no warming at all has occurred in either the atmosphere or the ocean for more than the last decade. The models are clearly faulty, and allocate too great a warming effect for the extra carbon dioxide (technically, they are said to overestimate the climate sensitivity). **Hypothesis fails.**

(v) The same computer models predict that a fingerprint of greenhouse-gas-induced warming will be the creation of an atmospheric hot spot at heights of 8-10 km in equatorial regions, and enhanced warming also near both poles.

Given that we already know that the models are faulty, it shouldn't surprise us to discover that direct measurements by both weather balloon radiosondes and satellite sensors show the absence of surface warming in Antarctica, and a complete absence of the predicted low latitude atmospheric hot spot. **Hypothesis fails, twice.**

One of the 20<sup>th</sup> century's greatest physicists, Richard Feynman, observed about science that:

*“In general we look for a new law by the following process. First we guess it. Then we compute the consequences of the guess to see what would be implied if this law that we guessed is right. Then we compare the result of the computation to nature, with experiment or experience; compare it directly with observation, to see if it works.*

*It's that simple statement that is the key to science. It does not make any difference how beautiful your guess is. It does not make any difference how smart you are, who made the guess, or what his name is. If it disagrees with experiment it is wrong.”*

None of the five tests above supports or agrees with the predictions implicit in the greenhouse hypothesis as stated above. Richard Feynman is correct to advise us that therefore the hypothesis is invalid, and that many times over.

### *Summary*

The current scientific reality is that the IPCC's hypothesis of dangerous global warming has been repeatedly tested, and fails. Despite the expenditure of large sums of money over the last 25 years (more than \$100 billion), and great research effort by IPCC-related and other (independent) scientists, to date no scientific study has established a certain link between changes in any significant environmental parameter and human-caused carbon dioxide emissions.

In contrast, the null hypothesis that the global climatic changes that we have observed over the last 150 years (and continue to observe today) are natural in origin has yet to be disproven. As summarised in the reports of the Nongovernmental International Panel on Climate Change (NIPCC), literally thousands of papers published in refereed journals contain facts or writings consistent with the null hypothesis, and plausible natural explanations exist for all the post-1850 global climatic changes that have been described so far.

### *Why is this conclusion not generally understood?*

I commented earlier that science is not about emotion or politics, despite which it is uncomfortably true also that public discussion of the global warming issue is conducted far more in accordance

with those criteria than it is about science. As discussed at more length in my book, there are three prime reasons for this.

First, as a branch of the United Nations, the IPCC is itself an intensely political and not a scientific body. To boot, the IPCC charter requires that it investigate not climate change in the round, but solely global warming caused by human greenhouse emissions.

Second, from local green activist groups up to behemoth NGOs like Greenpeace and WWF, over the last 20 years the environmental movement has espoused saving the planet from global warming as its *leit motif*. This has had two devastating results. One is that radical environmentalists have worked relentlessly to sow misinformation about global warming in both the public domain and the education system. And the other is that, faced with this widespread propagandization of public opinion and young persons, and by also by strong lobbying from powerful self-interested groups like government research scientists, alternative energy providers and financial marketeers, politicians have had no choice but to fall into line. Whatever their primary political philosophy, all active politicians are daily mindful of the need to assuage the green intimidation and bullying to which they and their constituents are incessantly subjected.

Third, and probably most influential of all, with very few exceptions major media outlets have provided unceasing support for measures to “stop global warming”. This behaviour appears to be driven by a combination of the liberal and green personal beliefs of most reporters, and the commercial nouse of experienced editors who understand that alarmist environmental reporting sells both product and advertising space.

***But given that the science remains uncertain, shouldn't we give earth the benefit of the doubt?***

This famous slogan (and note its deliberately emotive phrasing) is attributed to News Corporation's Rupert Murdoch; it bears all the hallmarks of having been produced by a green focus group or advertising agency. The catchy phrase also reveals a profound misunderstanding of the real climatic risks faced by our societies, because it assumes that global warming is more dangerous, or more to be feared, than is global cooling; in reality, the converse is likely to be true.

It must be recognized that the theoretical hazard of dangerous human-caused global warming is but one small part of a much wider climate hazard that all scientists agree upon, which is the dangerous natural weather and climatic events that Nature intermittently presents us with – and always will. It is absolutely clear from, for example, the 2005 Hurricane Katrina and 2012 Hurricane Sandy disasters in the US, the 2007 floods in the United Kingdom and the tragic bushfires in Australia in 2003 (Canberra), 2009 (Victoria) and in January this year (widespread), that the governments of even advanced, wealthy countries are often inadequately prepared for climate-related disasters of natural origin.

We need to do better, and squandering money to give earth the benefit of the doubt based upon an unjustifiable assumption that dangerous warming will shortly resume is exactly the wrong type of “picking winners” approach.

Because many scientists, including leading solar physicists, currently argue that the position that the Earth currently occupies in the solar cycle implies that the most likely climatic trend over the next several decades is one of significant cooling rather than warming. Meanwhile, the IPCC’s computer modellers assure us with all the authority at their command that global warming will shortly resume – just you wait and see.

The reality is, then, that no scientist on the planet can tell you with credible probability whether the climate in 2030 will be cooler or warmer than today. In such circumstances the only rational conclusion to draw is that we need to be prepared to react to either warming or cooling over the next several decades, depending upon what Nature chooses to serve up to us.

### ***What is the best way forward?***

Given that we cannot predict what future climate will be, do we still need national climate policies at all?

Indeed we do, for a primary government duty of care is to protect the citizenry and the environment from the ravages of natural climatic events. What is needed is not unnecessary and penal measures against carbon dioxide emissions, but instead a prudent and cost-effective policy of preparation for, and response to, all climatic events and hazards as and when they develop.



As Ronald Brunner and Amanda Lynch have argued in their recent book, *Adaptive Governance and Climate Change*, and many other scientists have supported too:

*“We need to use adaptive governance to produce response programs that cope with hazardous climate events as they happen, and that encourage diversity and innovation in the search for solutions. In such a fashion, the highly contentious ‘global warming’ problem can be recast into an issue in which every culture and community around the world has an inherent interest.”*

Climate hazard is both a geological and meteorological issue. Geological hazards are mostly dealt with by providing civil defense authorities and the public with accurate, evidence-based information regarding events such as earthquakes, volcanic eruptions, tsunamis, storms and floods (which represent climatic as well as weather events), and by mitigating and adapting to the effects when an event occurs.

New Zealand’s [GeoNet](#) natural hazard network is a world-best-practice example of how to proceed. GeoNet is New Zealand’s national natural hazard monitoring agency. GeoNet operates networks of geophysical instruments to detect, analyse and respond to earthquakes, volcanic activity, landslides and tsunami. The additional risk of longer-term climate change, which GeoNet currently doesn’t cover, differs from most other natural hazards only in that it occurs over periods of decades to hundreds or thousands of years. This difference is not one of kind, and neither should be our response planning.

The appropriate response to climate hazard, then, is national policies based on preparing for and adapting to all climate events as and when they happen, and irrespective of their presumed cause. Every country needs to develop its own understanding of, and plans to cope with, the unique combination of climate hazards that apply within its boundaries. The planned responses should be based upon adaptation, with mitigation where appropriate to cushion citizens who are affected in an undesirable way.

The idea that there can be a one-size-fits-all global solution to deal with just one possible aspect of future climate change, as recommended by the IPCC and favoured by green activists and most

media commentators, fails entirely to deal with the real climate and climate-related hazards to which we are all exposed every day.

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- See more at: <http://www.aitse.org/global-warming-anthropogenic-or-not/#sthash.pVSr2R6I.dpuf>