

# The Truth About Climate Change

Jonathan Tooker<sup>1</sup>

<sup>1</sup>*Occupy Academia, Atlanta, Georgia, USA, 30338*

(Dated: September 10, 2013)

## Abstract

Climatology occupies the intersection of science policy and public understanding of science. In such a prominent position, the wide spectrum of climate opinions is remarkable. Society has achieved a paradigm in which global warming subscribers and non-subscribers are largely segregated by political affiliation. Since science is non-political, only a misunderstanding of the science can facilitate such a segregation. In the first section we analyze a recent study by Cook *et al.* finding overwhelming scientific endorsement for the greenhouse theory of anthropogenic global warming (AGW). We find the popular reporting on Cook's result is not accurate. The aim of the following section is to clarify the science behind the most popular climate arguments and introduce the reader to some evidence that is not widely publicized. Even the astute non-climatologist should come away from this report with an enhanced understanding of relevant issues in modern climate science.

## INTRODUCTION

Some people will believe anything prefaced, “According to scientists,” and others will outright ignore the same. Setting aside those with miraculous *a priori* knowledge, there is a real desire to know the truth about the climate. Academic institutions frown on researchers bypassing PR departments to go public and the technical jargon in the journals can be inaccessible. In lieu of first-hand accounts, the public makes do with second-hand accounts filtered through the pundits, politicians and other editors.

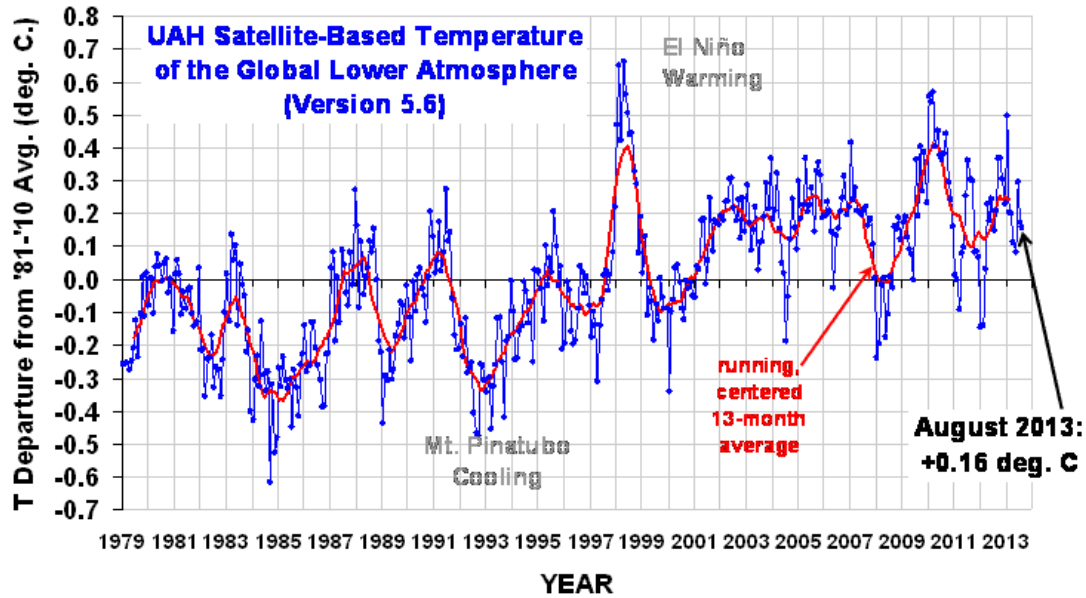
The purpose of this report is to circumvent the filter and provide a physicist’s first-hand account of the climate. We make no attempt to disprove the greenhouse theory of anthropogenic global warming (AGW). To the dismay of “the climate deniers” sufficient evidence to disprove AGW does not exist, but likewise, sufficient evidence does not exist to conclude that AGW is definitely correct. Contrary to this second point, the narrative is that evidence in favor of AGW is overwhelming and all parties must concede its veracity. Such sentiment was notably summarized by Al Gore:

“If you look at the peer reviewed scientific literature, the debate is over.”

Figure 1 shows that during Al Gore’s heyday there was clearly exceptional warming with 1.3°C gained between 1984 and 1998, and even one full degree during his White House tenure. Despite that historical warming there has been little if any warming over the most recent 15 years. If the debate was over in 1998, is it still over now? The popular perception is that the last 15 years’ climate data had no bearing on Al Gore’s consensus of non-debating scientists. In truth, science is only as good as its data.

With due deference to data, there have been many attempts to quantify the level of scientific agreement on AGW. Most recently, Cook *et al.* (Cook) carried out a study pegging the level of consensus at 97% [1]. Cook’s result backs the media’s sentiment but a consensus in the media is not a consensus of scientists.

There is a lot evidence supporting AGW, that is not in dispute. In dispute is whether that evidence is conclusive. Are the scientists as certain as perception implies? Beyond the evidence for AGW, evidence against it is significant. Here we examine the idea that the popular case for AGW has been falsified by cherry-picking which data to include and which to ignore. Taking into account that the pro-AGW evidence is presented elsewhere *ad absurdum* this report gives added attention to the evidence against it.



**FIG. 1:** The University of Alabama, Huntsville publishes the temperature of the global lower atmosphere each month. This dataset is superior to many others because an absolute minimum of adjustments are applied to the raw data before publishing. The latest version of this chart is always available on Dr. Roy Spencer’s climate website [2].

### JOHN COOK QUANTIFIES A NULL

Two things go into a scientific conclusion: the data and its interpretation. When it can be shown the data has a unique interpretation, a firm conclusion is justified. We will show Cook made unsound conclusions proceeding as if his chosen interpretations are the only ones possible. Where appropriate, we illustrate alternative interpretations but note well, the reader should not believe we are presenting these alternatives as correct. The purpose of putting forth alternatives is this: by showing that other possibilities exist, we show that Cook’s conclusions are speculative.

Cook used two metrics to investigate the number of climatologists endorsing AGW. He did a literature survey and then attempted to poll the authors of that literature. The survey found that 35% endorsed AGW and later, in the highly problematic poll, that number increased to 65%. In judging Cook’s research, we maintain focus on one question: Did each particular climatologist endorse AGW? The question is binary. Either an individual chose to endorse or they didn’t. No other possibilities exist.

Position	% of all abstracts	% among abstracts with AGW position (%)	% of all authors	% among authors with AGW position (%)
Endorse AGW	32.6% (3896)	97.1	34.8% (10188)	98.4
No AGW position	66.4% (7930)	—	64.6% (18930)	—
Reject AGW	0.7% (78)	1.9	0.4% (124)	1.2
Uncertain on AGW	0.3% (40)	1.0	0.2% (44)	0.4

**FIG. 2:** The literature survey results.

In the literature survey, Cook was able to create the illusion of consensus by discarding 99% of non-endorsing scientists and abstracts. It is unfortunately that simple. Figure 2 appeared in Cook’s report and it makes his methodology clear. Applying our stated analysis, we ask if the authors in each row did or did not endorse AGW. Clearly the first row did and the other three did not. In the raw data, the percentage of climatologists choosing to endorse AGW is slightly less than 35%. This is the only number in Cook’s report that can be considered somewhat objective. Less than 35% is obviously not a consensus.

In column 4 there are about 20,000 authors who did not endorse AGW. In column 5 there are 168 because the 99% of non-endorsers who did not take a position were removed. There are many reasons an author may have chosen not to endorse or reject AGW. First among them is that the author does not see sufficient evidence to make an evaluation. Indeed, those who neither endorse nor reject AGW are in highest compliance with the fundamental Socratic tradition of scientific inquiry.

Cook makes it clear the figures in column 5 are “among authors with AGW position” but the media uses no such nuance reporting 97%. They have effectively labeled those taking no position as non-scientists when, following the logic, it is those taking a position based on inconclusive evidence that are better described as non-scientists. (That the evidence is inconclusive is shown below.) The poll result is presented in figure 3 and it’s clear those taking no position were again reduced to non-scientists.

Cook is not fully responsible for the misguided interpretation of his result so we also discuss the bias in the study for which he is solely responsible. Cook’s report includes a section for sources of uncertainty:

Position	% of all papers	% among papers with AGW position (%)	% of respondents	% among respondents with AGW position (%)
Endorse AGW <sup>a</sup>	62.7% (1342)	97.2	62.7% (746)	96.4
No AGW position <sup>b</sup>	35.5% (761)	—	34.9% (415)	—
Reject AGW <sup>c</sup>	1.8% (39)	2.8	2.4% (28)	3.6

<sup>a</sup>Self-rated papers that endorse AGW have an average endorsement rating less than 4 (1 = explicit endorsement with quantification, 7 = explicit rejection with quantification). <sup>b</sup>Undecided self-rated papers have an average rating equal to 4. <sup>c</sup>Rejection self-rated papers have an average rating greater than 4.

**FIG. 3:** The author poll results.

“[F]irst, given that the raters themselves endorsed the scientific consensus on AGW, they may have been more likely to classify papers as sharing that endorsement. Second, scientific reticence (Hansen 2007) or ‘erring on the side of least drama’ (ESLD; Brysse *et al.* 2012) may have exerted an opposite effect by biasing raters toward a ‘no position’ classification.”

The first is a fair assessment but Cook fails to mention the sample selection criteria as a potential source of bias introduced before the raters. Only papers where the phrases “global climate change” or “global warming” appeared in the abstract were considered. Given Cook acknowledges the reality of ESLD (erring on the side of least drama), he should acknowledge that anyone whose data disagrees with AGW may be disinclined to make overt statements to that effect. The result being that some non-endorsing papers will be less likely to pass through Cook’s filter.

More, the raters aren’t identified as scientists but only as users of Cook’s website *Skeptical Science*. Since they aren’t scientists, there is no reason to assign them ESLD properties and Cook’s second point about negated bias is invalid. That Cook applies ESLD to his raters – and not the scientists themselves – shows the non-objectivity of his quest to find support for AGW by any means, reasonable or not. More shocking is that Cook does not consider ESLD in his treatment of the 20,000 no-position authors that did make it into his 30,000 author study. At minimum, ESLD will make it less likely for scientists mentioning global warming to plainly reject it. Cook writes:

“Of note is the large proportion of abstracts that take no position on AGW.

This result is expected in the consensus situation where scientists ‘...*generally focus their discussions on questions that are still disputed or unanswered rather than on matters about which everyone agrees.*’ (Oreskes, 2007)”

It is unusual to see such a blatant logical fallacy appear in the scientific literature. Cook makes a circular argument using his conclusion to support the logic and his peer-reviewers apparently took no issue with that. Without showing the “consensus situation” is relevant – or even exists – he uses it to describe the general character of no-position. It is possible that many non-endorsers did not feel the need to state what they feel is obvious but there is no warrant to apply that reasoning to the complete body of non-position takers. If Cook is going to explain no-position with unsupported hypothetical extremes, he should also consider that it may be akin to professional suicide for climatologists on certain research grants to reject AGW. Without hypotheticals, ESLD remains a glaring hole in Cook’s treatment of no-position.

Finally, we come to the greatest source of bias in this study. Consider these statements on the author poll:

“[S]ources of bias were partially addressed by the use of multiple independent raters and by comparing abstract rating results to author self-ratings. A comparison of author ratings of the full papers to the abstract ratings reveals a bias toward undercounting of endorsement papers in the abstract ratings.”

Cook claims that since he found 65% endorsement in the author poll, that is evidence of undercounting in the literature survey that found 35%. This analysis is poor for a number of reasons. Only about one in four authors from the literature survey were selected to receive a poll. Cook does not mention that the selectors may have preferentially chosen pro-AGW papers. Of the authors who received the email poll, only 14% responded and just as the raters who chose to work with Cook are expected to be biased, we can expect this bias in the respondents. That Cook treats the responding authors as a representative sample of climatologists in general is a grievous overreach. Given Cook’s lack of a professorship, research experience or even any graduate degrees, and the reputation he has earned running *Skeptical Science*, many poll recipients may have been disinclined to participate.

In the final section of Cook’s report, he makes some unsupported conclusions:

“[T]here is a significant gap between public perception and reality, with 57% of the US public either disagreeing or unaware that scientists overwhelmingly agree that the earth is warming due to human activity (Pew 2012).”

And:

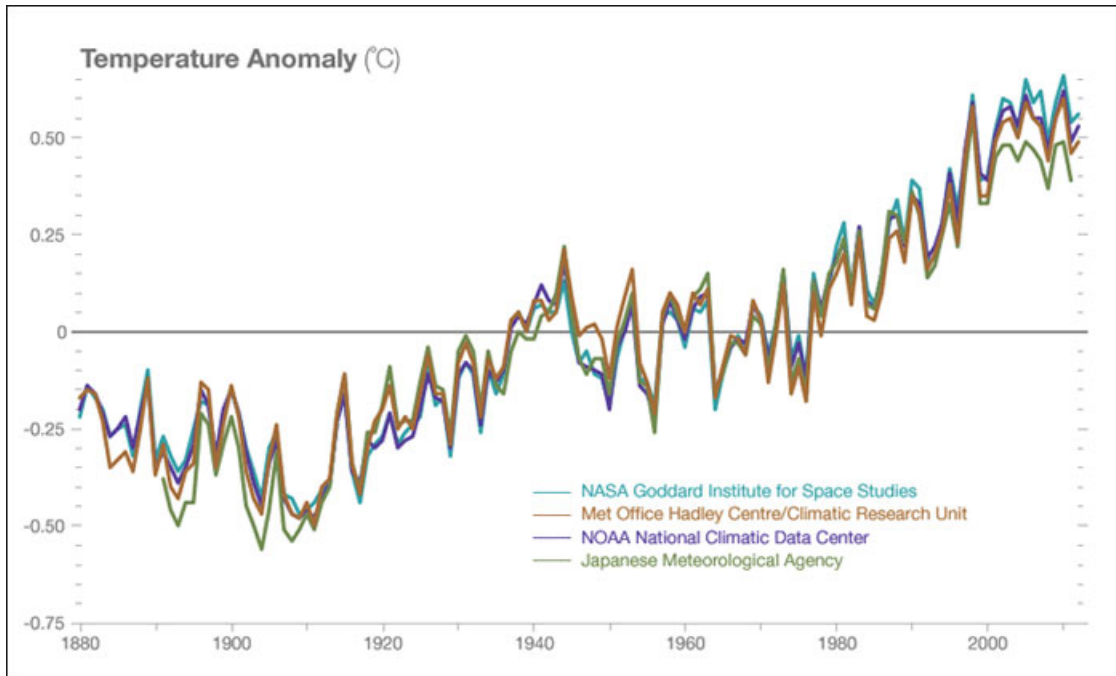
“The narrative presented by some dissenters is that the scientific consensus is ‘...on the point of collapse’ (Oddie 2012) while ‘...the number of scientific “heretics” is growing each passing year’ (Alegre *et al.* 2012). A systematic comprehensive review of the literature provides quantitative evidence countering this assertion. The number of papers rejecting AGW is a miniscule proportion of the published research...”

On the first conclusion, he never showed that scientists overwhelmingly agree. The title of Cook’s paper *Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature* speaks to the unscientific nature of the material within. Since Cook offered no evidence that such a consensus exists, that this incendiary title was given the green light by IOP Publishing brings shame to that organization. On the second conclusion, his review of the literature provided evidence supporting Oddie and Alegre’s assertions, not against them. Lastly, Cook makes no allowance anywhere in his analysis or conclusions that the “miniscule proportion” of outright rejections could be caused in part by ESLD. It appears he makes these unsupported concluding remarks to willfully enable a mischaracterized result. As a professional communications fellow, Cook understands how best to convey the intended message.

## **FALLACIES AND DATA**

Cook’s effort was quickly assimilated into the climate canon and now appears prominently on NASA’s climate website under the headline *Consensus: 97% of Climate Scientists Agree* [3]. As most venues, NASA ignores the fact that Cook adjusted his raw data by removing 99% of non-endorsers. NASA’s inaccurate headline accompanies a chart of temperature over the last century (figure 4).

The four plotted records generally agree. For ease of analysis we examine NASA’s prominent Goddard Institute for Space Studies temperature index (GISS) as a proxy for the entire

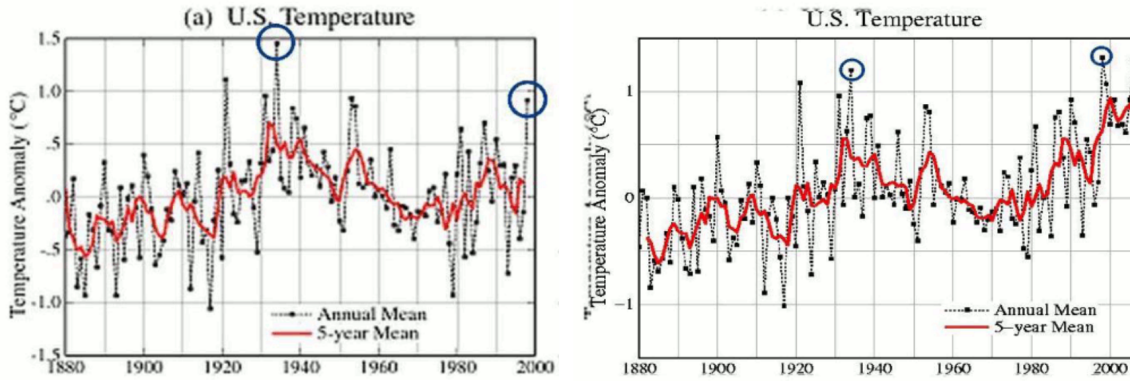


**FIG. 4:** NASA’s climate consensus website shows this plot of warming over the last century but the chart does not represent four historical records of the actual global temperature. (It should be immediately obvious there was no accurate record of the global temperature in 1880.) In place of measured data, NASA endorses the 97% consensus with four adjusted temperature indexes.

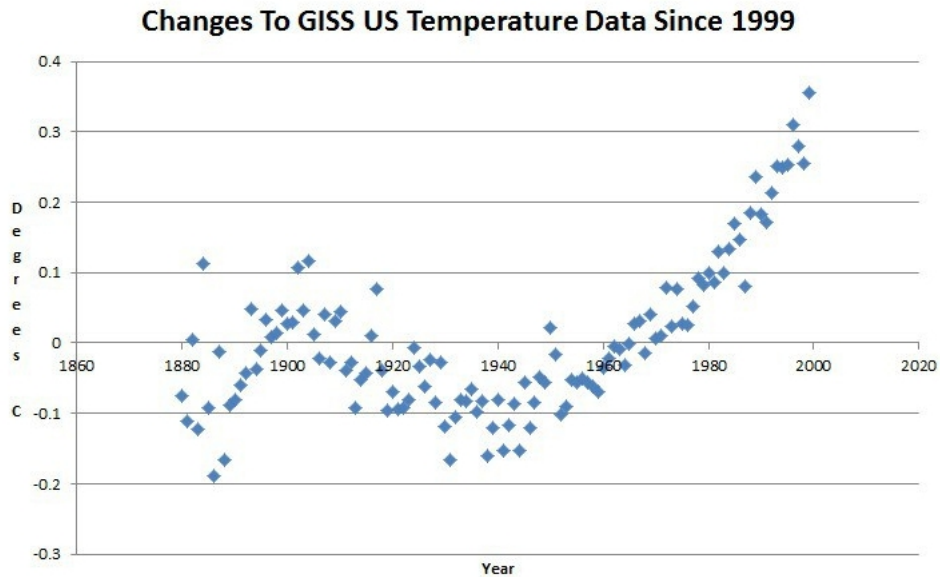
chart. The first thing to understand about figure 4 is the difference between a measurement of the temperature and an adjusted temperature index. The UAH temperature in figure 1 is very nearly a pure measurement. GISS is an index: an amalgamation of real temperatures and *ex post facto* temperature adjustments. Ideally the adjustments represent scientists’ best guesses but in reality they can be ordinary guesses or even desires. The only adjustments to UAH come in the form of averaging between individual satellites.

As Cook was able to apply “adjustments” to transform 35% into 97%, all parties are able to apply adjustments to any data to produce any trend. Figure 5 makes this abundantly clear. On the left is NASA’s GISS index as it appeared on their servers in 1998. On the right is the index as it appears now. The gravity of this obvious data tampering should be fully appreciated. If one queried the GISS database for the hottest year on record in 1999, the answer unambiguously came from the Dust Bowl: 1934. However, that data was deleted from NASA’s servers and a query for the same in 2013 will return 1998 as the hottest year.





**FIG. 5:** On the left is the GISS temperature index as it appeared on NASA’s servers in 1998. On the right is the index as it appears now. For visualization purposes, the hottest years on record before and after the adjustments are circled. Images taken from Steve McIntyre’s website *Climate Audit* [4].



**FIG. 6:** This plot subtracts the datasets in figure 5. Everything since 1970 has been artificially made to look hotter and earlier years mostly made to look cooler.

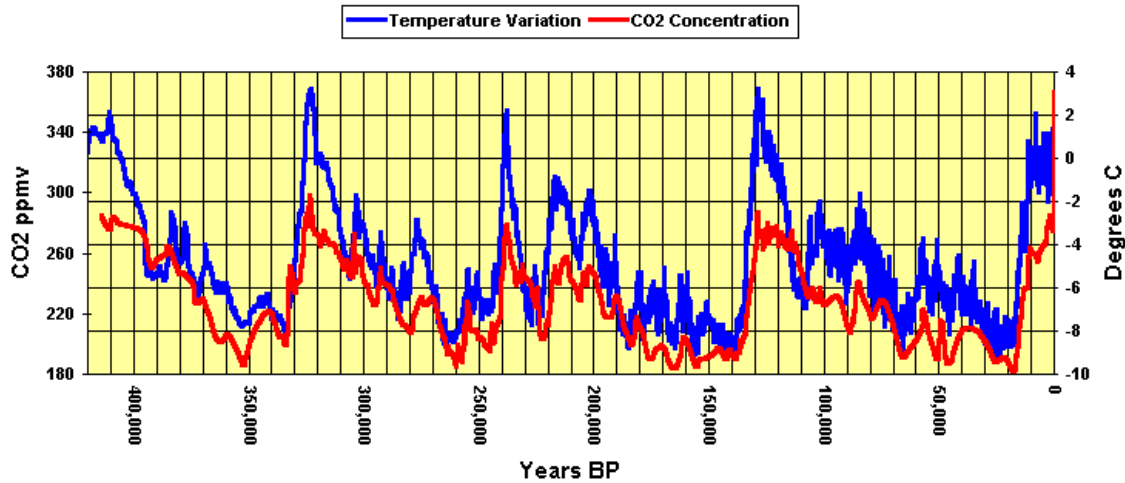
The adjustments to the historical data – known as Hansen or other adjustments – were ostensibly introduced to fix errors in the original measurements. As the global warming hysteria grew, so did the adjustments. The current correction to the original GISS index appears in figure 6. We are to believe no warming trend appeared in the original GISS because the “errors” in the data were just such that warming was canceled out. In truth, there have been no recent revelations in the physics of heat that warrant these adjustments. Since thermometer technology has improved over the years, if anything, the larger adjustments should be in the more primitive historical data. Sadly, this is not the case; the data has been adjusted to fit a narrative. It’s Cook’s methodology reborn.

The adjusted data phenomenon also manifests in the ice core arena. Predictions for warming are based on computer models since there is very little real data pertaining to the long-term interplay of CO<sub>2</sub> and heat in the atmosphere. Infinite dimensional non-linear systems such as the climate are impossible to model exactly. Models must rely on simplifying parameters that approximate the way different dynamical climate processes affect each other. This is standard practice and completely kosher; without chosen parameters one could never model anything so complex as the climate. However, the models diminish in significance when they disagree with the measurements. The arbitrary aspect of the parameters is trumped by the factual aspect of the data.

During AGW’s nascent phase, increasing numbers of scientists produced predictions for runaway greenhouse effect. At the same time, scientists in Antarctica were drilling into the ice to recover a record of atmospheric conditions. (Each year’s new snowfall traps tiny bubbles of air which are locked in place and buried by subsequent snowfall.) The undisturbed Antarctic ice is miles deep in places and provides hard data on climate trends over the last several hundred thousand years.

When climatologists compared the CO<sub>2</sub> record to the temperature record, they found temperature increases typically precede CO<sub>2</sub> increases by 500–800 years as in figure 7. It goes without saying this is the polar opposite of the assumed relationship. It is reasonable to suspect the historical correlation between CO<sub>2</sub> and temperature may be inapplicable in modernity because anthropogenic CO<sub>2</sub> represents an entirely new process. However, since there is only one piece of physical data regarding the long term correlation – and it disagrees with the models – we have good reason to be skeptical of said models. It is almost beyond comprehension that absolute significance is given to the theory and none to the actual data.

## Antarctic Ice Core Data 1



**FIG. 7:** The correlation of temperature and CO2 is derived from data. That temperature is to left of CO2 in each spiking event shows CO2 has not been a historical driver of temperature.

The ice cores have been available throughout the AGW debate but in 2013 their analysis was improved upon. Frédéric Parrenin and collaborators report they have discovered something new about ice implying the CO2 record needs to be adjusted 500 years earlier [5]. This is precisely the adjustment needed to make an argument that, due to uncertainty in the data, there is no clear chronological precedence in the CO2 and temperature spikes. If the adjustment was slightly smaller, the data would still dispute the models. If it was any larger, Parrenin *et al.* would directly contradict the results of all others who worked on the cores. One possibility is that GISS and the ice core data were properly corrected. The other possibility is there have been no recent breakthroughs in our understanding of thermometers and ice. Since the relevant physical properties are exceedingly simple and not amenable to large errors, by principle of sufficient reason, this writer is drawn toward the latter.

Beneath NASA's endorsement of the 97% figure, their website provides a number of statements intended to illustrate the consensus. We present a few of them here and point out the reliance on ambiguous wording:

“The scientific evidence is clear: global climate change caused by human activities is occurring now, and it is a growing threat to society.”

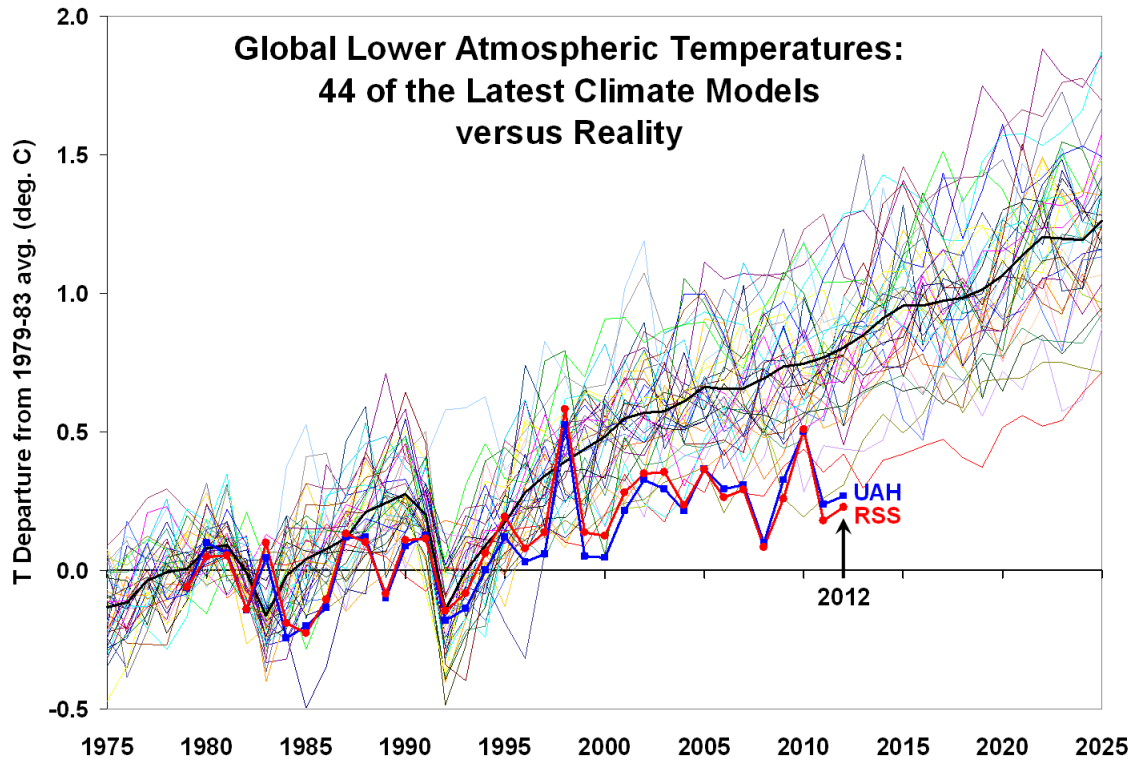
Most notable is the reference to climate change rather than global warming. The climate always changes, no one denies that. Since humans are a part of the biome, no one denies that human activities do drive climate changes. These things are obvious. Not obvious, this quote from the American Association for the Advancement of Science completely avoids the contentious issue in the climate debate: what exactly are the changes being caused by humans? For example, no one denies human activity has increased the global atmospheric concentration of CO<sub>2</sub>. If they meant to say human activity is driving global warming through the greenhouse effect, why not say that?

“Comprehensive scientific assessments of our current and potential future climates clearly indicate that climate change is real, largely attributable to emissions from human activities, and potentially a very serious problem.”

Not granting that assessments of potential futures can clearly indicate anything, we see the same issue with this quote from the American Chemical Society. The climate does always change, yes that is correct. What aspects of that change are they assigning to human activity? The quote ends with another remark that is not under dispute: The climate does have the potential change in problematic ways. For instance, a recurrence of the last ice age – which was not caused by human activity – would be highly problematic. If these organizations intend to make unambiguous statements, why not use unambiguous language?

“The evidence is incontrovertible: Global warming is occurring. If no mitigating actions are taken, significant disruptions in the Earth’s physical and ecological systems, social systems, security and human health are likely to occur. We must reduce emissions of greenhouse gases beginning now.”

To the partial credit of the American Physical Society, this non-factual statement was issued in 2007 when the steady temperature trend was not so clearly pronounced as it is in 2013. Not to their credit, the current lack of warming is only a continuation of the non-warming in the unadjusted data. Further, among all sciences, it is the physicists who are most qualified to point out that even in 2007, before Perrenin *et al.* unlocked the mysteries of ice, the only hard data available did not agree with predictions for “significant disruptions.” (It is apparent whoever was speaking for APS on that day was not influenced

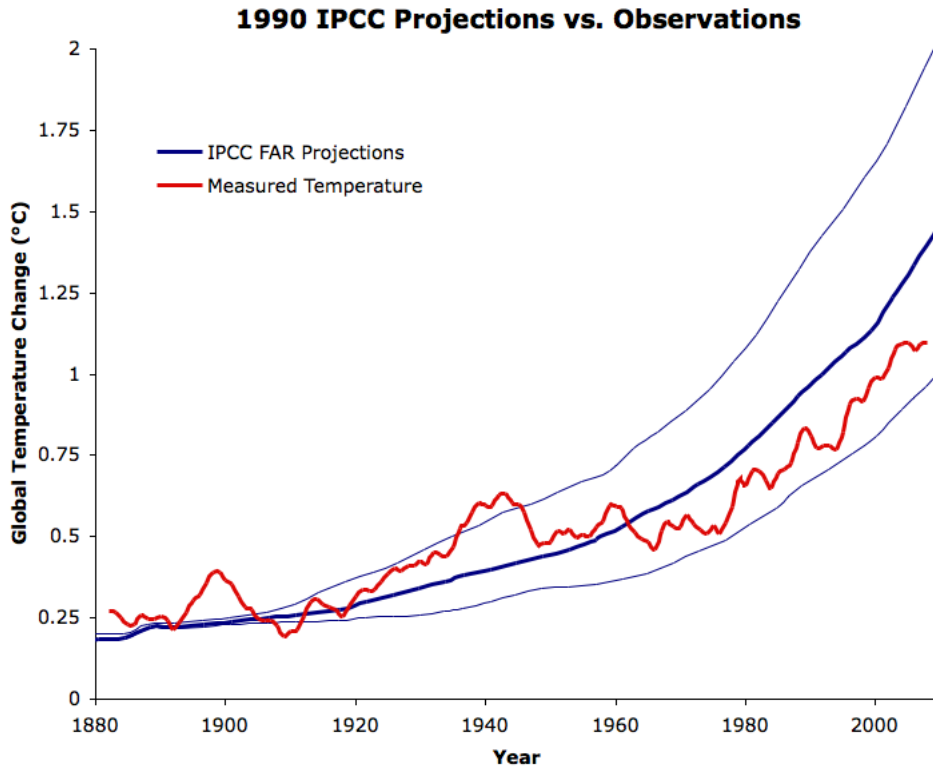


**FIG. 8:** Real temperature is compared to the most popular models.

by ESLD.) However, reducing emissions is something many can agree on. Fossil fuels are a non-sustainable resource and bad for the environment even without impending bombastic disaster.

A 2009 report from MIT by Sokolov *et al.* found the climate is actually much worse than predictions [6]. When confronted with such a clear chart as figure 8, one has to ask: What data are they using? Since UAH and RSS are measured, it is a foregone conclusion that Sokolov *et al.* used adjusted rather than pure data.

Figure 9 shows how the “measured” temperature has tracked one of IPCC’s early predictions. (It should be noted that despite proclamations, as a unit of the United Nations, IPCC is a purely political body and not a scientific one. Simply employing scientists is not sufficient justification to claim scientific objectivity.) Comparing figures 1 and 4 to figure 9, it is clear the plotted temperature is a mislabeled temperature index. The recent sharp rise in figure 9 is the same rise seen in GISS (figure 4). When the last 10 years of steady GISS temperature are added to figure 9, even the adjusted index is below IPCC’s



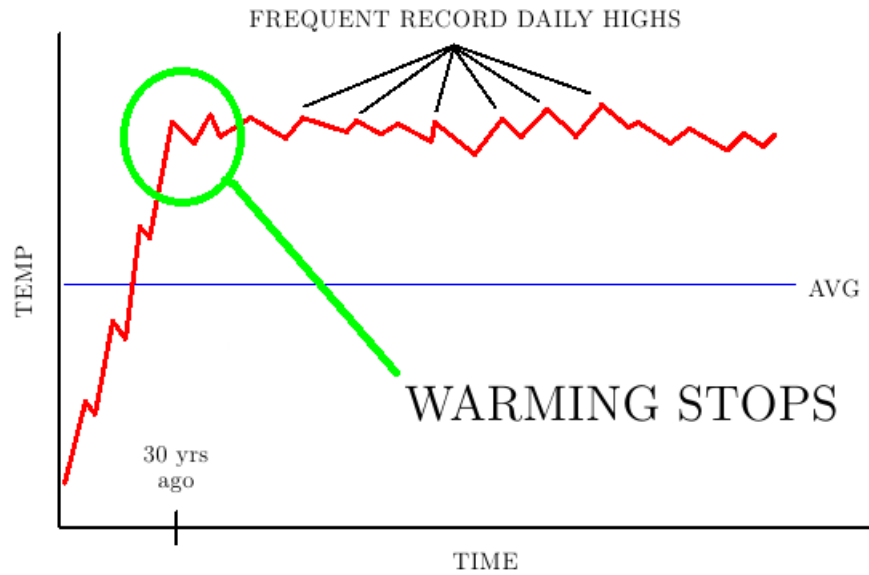
**FIG. 9:** The plotted temperature index is wrongly labeled as measured. Image taken from John Cook’s *Skeptical Science* website.

lower threshold. When compared against the real temperature, the prediction is a complete mischaracterization of reality and clearly has been for a number of years.

The latest in the never ending process of pushing the climate bar higher is to blame the lack of atmospheric heat on deep ocean warming. Henrik Svensmark, a physicist and professor at the Danish National Space Institute in Copenhagen, concisely addresses the problem with that argument:

“How should ocean water under 700 meters be warmed up without a warming in the upper part? [*sic*] In the period 1990–2000 you could see a rise in the ocean temperatures, which fit with the greenhouse effect. But it hasn’t been seen for the last 10 years. Temperatures don’t rise without the heat content in the sea increasing. Several thousand buoys put into the sea to measure temperature haven’t registered any rise in sea temperatures.”

An oft-made point in the climate debate is that anyone less than 28 years old has never experienced a month cooler than the 20th century average. Somehow this idea is taken as a

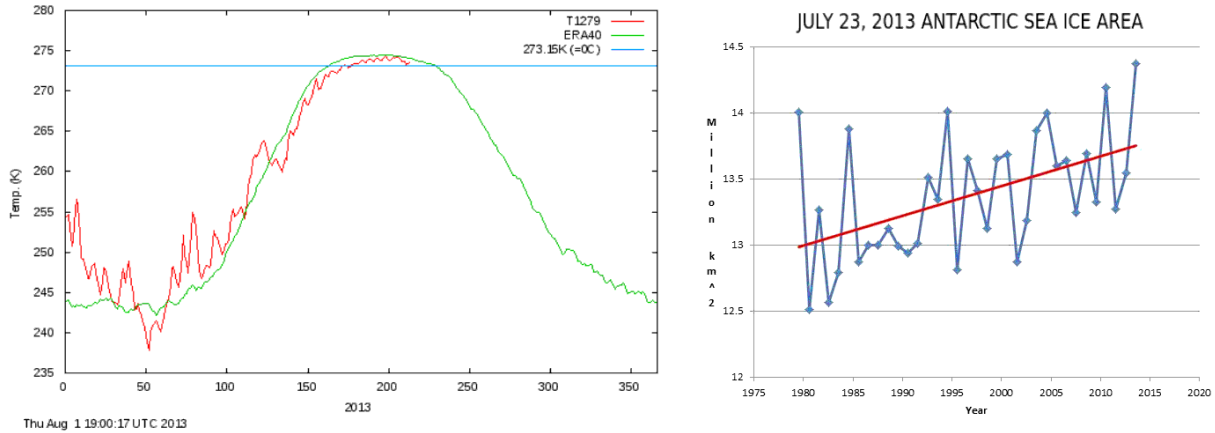


**FIG. 10:** Hundreds of consecutive months of above average temperature do not conclusively imply warming during that time. Likewise, any number of record high daily temperatures are not conclusive.

meaningful pro-AGW argument. Ignoring the obvious issues about an average of adjusted data, figure 10 cartoonishly shows that many years of above average temperature say nothing about warming in those years. If past warming plateaued, every recent month's average would be higher than the average of the previous warming period. As temperatures stay mostly the same, different fluctuations in temperature fall on different days in different years causing frequent record daily highs. Figure 10 also shows such highs do not prove recent warming. That high averages and frequent records are floated as conclusive evidence belies the scientific merit of the standard debate.

Many have chosen to reject or adhere to AGW without regard for the truth. This allows meaningless arguments and the outright falsehoods of pseudoscience to be repeated alongside legitimate evidence. As an example, consider the big AGW propaganda coup for summer 2013. There was a picture taken at the North Pole showing a pool of open water presumably caused by the unfolding greenhouse catastrophe. Never mind the photo was actually taken 300 miles from the North Pole [7] or the words of Dr. Claire Parkinson, a climatologist at NASA's Goddard Space Flight Center:

“The fact of having no ice at the pole is not so stunning...”



**FIG. 11:** On the left is the average and actual Arctic temperature. The horizontal line is freezing. In a typical summer, the Arctic temperature goes above freezing on about 90 days. In 2013 it was half that. On the right, in 2013 the Antarctic sea ice expanded to cover more area than has been observed since record keeping began.

The context of Dr. Parkinson’s words were that open water in the Arctic is only worrisome when the extent is very large. It is normal for small pools of open water to randomly appear.

Most interesting about open water 300 miles from the pole is that, of all the climate data available for publicity, that particular thing was selected as meaningful. Never mind the “not so stunning” open water appeared during the shortest Arctic summer on record or that the Antarctic sea ice was concurrently at an all time high (figure 11). Never mind there were almost 3,000 record cold temperatures in the United States between July 24 and August 19. Never mind the 2013 Atlantic hurricane season has had the slowest start since records began. Open water “at the North Pole” is cherry-picking in its purest form.

The term climate change itself has entered the lexicon as a way to alleviate the logical problems associated with AGW. Somehow it is taken for granted that scientists now agree increased CO2 in the air is going to change the climate but not necessarily warm it. Thus we refer to climate change instead of global warming. Despite the change in semantics, the predictions of the greenhouse theory of anthropogenic global “climate change” remain the same. Those predictions, as canonized in numerous IPCC reports, find a direct correlation between atmospheric heat and CO2.

The assumed link between CO2 and heat is a mathematical relationship that can be analyzed. For example, beyond scalar levels of heat and CO2, AGW predicts increasing



rates of CO2 pollution will cause increasing rates of warming. If CO2 emissions accelerate, warming should accelerate, etc. These relationships are known as derivatives and the physical argument for AGW predicts all derivatives of CO2 are correlated with all derivatives of temperature.

The amount of CO2 released into the atmosphere has grown exponentially in the past. For illustrative purposes we will assume a simple quadratic relationship between CO2 and time. This approximation is useful because it preserves the relevant qualitative features of our increasing CO2 pollution.

$$\text{CO2}(t) = at^2 \tag{1}$$

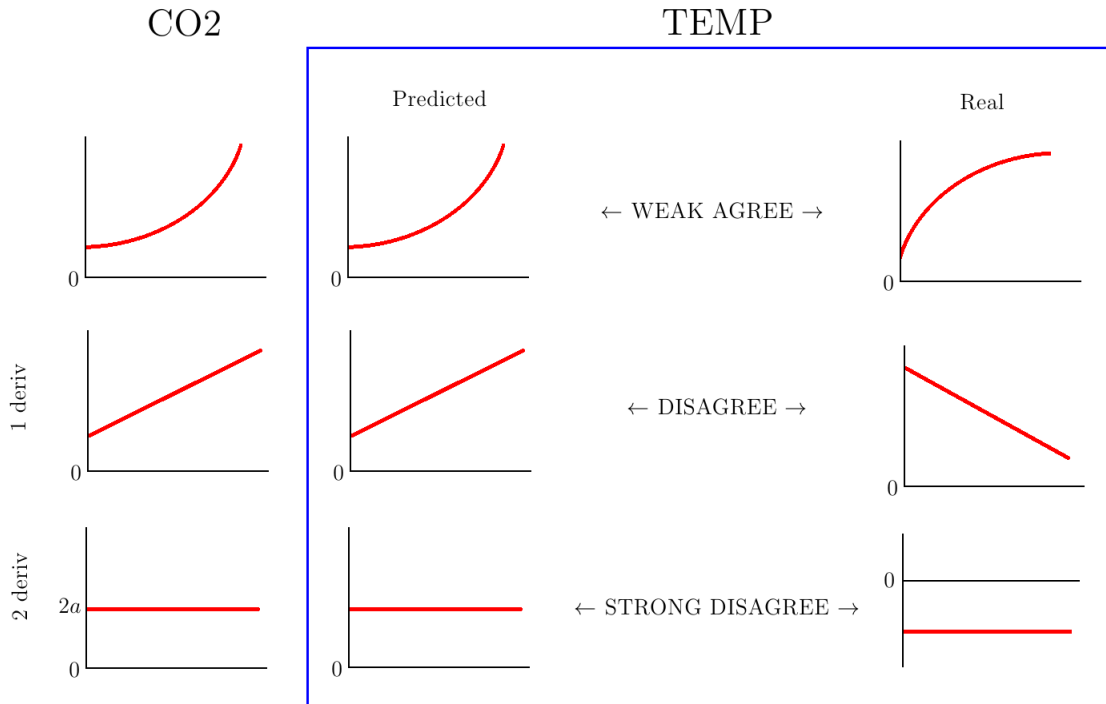
$$\text{CO2}'(t) = 2at \tag{2}$$

$$\text{CO2}''(t) = 2a \tag{3}$$

The first function tells us that at any time, the amount of CO2 in the air is given by some number  $a$  times the amount of time squared. The next function (the first derivative) says the rate at which CO2 accumulates in the air is a simple linear function of time. The last (the second derivative) tells us CO2 levels are accelerating at a constant rate that does not depend on time.

To understand these functions, assume the world's economy grows 2% each year. This is a constant number and is reflected in the constant second derivative. Since growth is compounded each year, a larger quantity of CO2 enters the atmosphere than in any preceding year. This increasing rate of pollution is described by the first derivative. For the exponential function we call on a monetary example. Just as compound interest on an investment will lead to exponential growth in value, the steady rate of industrialization leads to exponential rises in CO2.

Having covered the fundamentals, we now present the single most compelling piece of evidence against AGW. Figure 12 plots each function of CO2 next to the predicted and real temperature trends. (We concede GISS to show the theory fails even when using adjusted data.) The first row shows CO2 is speeding up but, according to GISS, the temperature is slowing down. This disparity is shown in the second row where the CO2 rate is up and the temperature rate is down. The third row shows the acceleration of each quantity. According to AGW, since CO2 and temperature are directly correlated, if the second derivative of

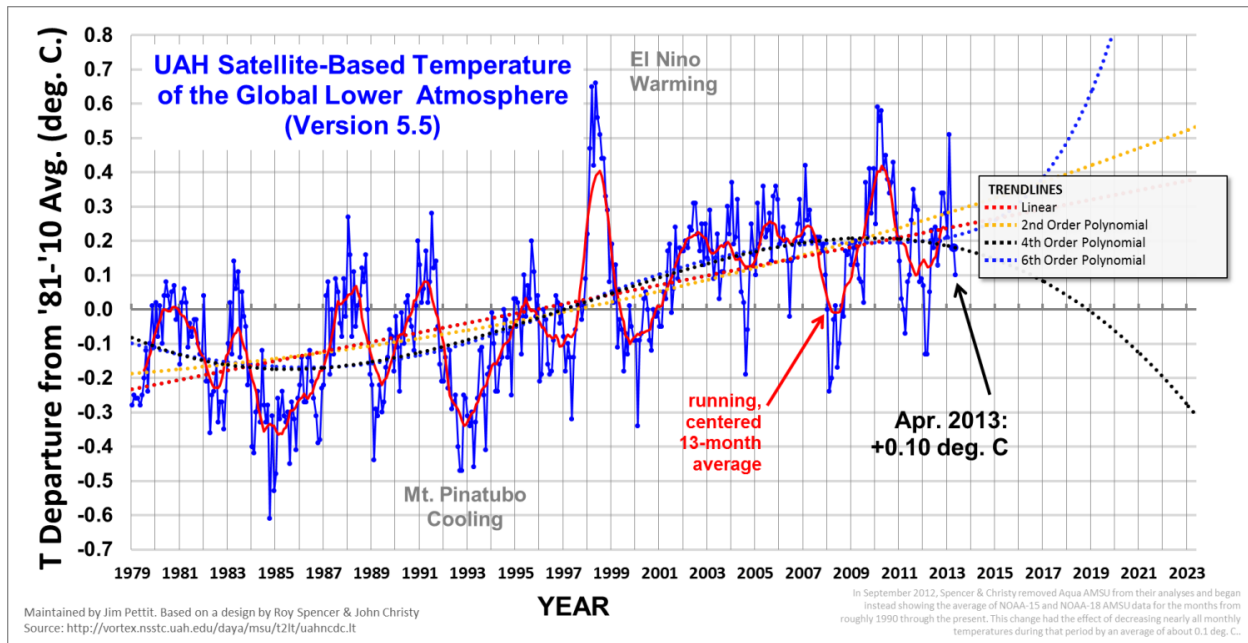


**FIG. 12:** The first row shows CO2 and temperature increasing with time so there is agreement between the theory and the measurement (assuming the GISS trend.) However, since the prediction is concave up and the temperature is concave down, the agreement is weak.

The second row shows the first derivative which measures the rate of increase. The prediction and the real temperature both have positive first derivatives (greater than zero), but since the predicted trend is up and the real trend is down, the first derivative does not agree with the predictions of AGW.

The bottom row shows the acceleration. The prediction does not remotely agree with reality. Since the prediction is a constant positive number and the reality is a constant negative number, this is the strongest possible disagreement.

CO2 is a positive number, in this case  $2a$ , the second derivative of temperature must also be some positive number. However, since the temperature is increasing less now than in the past there is a negative second derivative of temperature. This disagreement is known as



**FIG. 13:** In the unadjusted data for 1980–present there is a linear increasing heat trend. The linear trend is often cited as evidence for warming, but there is no reason to assume the linear fit is the correct one. Other trendlines show various possibilities.

anti-correlation.

When a theory predicts correlation and anti-correlation is observed, that is strongest possible indicator that the theoretical relationship is wrong. If there was anti-correlation in the first or second rows of figure 12, AGW would be decisively proven wrong. Since it only appears in the second derivative, this is strong, yet inconclusive evidence against AGW. As figure 13 makes clear, only time will tell if the trend aligns with or continues to diverge from the prediction.

As a stochastic rather than deterministic process, climate is notoriously hard to predict. Indeed it is the definition of stochastic that exact predictions are impossible. Fortunately, the tools widely used to understand stochastic processes in equity markets are equally useful in understanding the climate. One of the most trusted stochastic indicators is known as double top and is a strong indicator for trend reversal. The 13-month average in figures 1 and 13 holds a good example of the pattern. In 1998 and 2010 the average bounced off  $+0.4^{\circ}\text{C}$  and, while inconclusive, according to one of the most fundamental ideas in stochastic analysis, that hard bouncing indicates a likely reversal in the temperature trend.

## CONCLUSION

The evidence is not conclusive and the fictitious consensus of scientists is a simultaneous abortion of truth, science and journalism. The number of AGW endorsers may be higher than 35% but it is definitely much lower than 97%. Recall Cook was unable to demonstrate even a simple majority of scientists. Rational people should be open to the idea that thermal processes in the atmosphere – which separates our volcanic planet from the hard vacuum of space – may be more complicated than what can be understood about a physical greenhouse in a garden. This complexity demands a higher level of scientific nuance than is encapsulated in the climatological idiom.

In figure 4 the Japanese index diverges from the western ones after the year 2000. Since the science behind each index is the same, but the political entities are different, it is possible the adjustments have a political aspect. One ready explanation for the divergence is that the Japanese government did not require its climatologists to revise as much as the British and Americans. Science is not a religious order of ascetic monks; scientists are human and vulnerable to the same life pressures and manipulations as everyone else. Hence the possibility of political meddling must be acknowledged.

Once there was a large environmental media presence pushing to save the rain forests, the whales, etc, but after AGW became environmentalism's top priority "save the rain forest" gave way to "save gas." Real problems happening now such as deforestation, maltreatment of the seas and contamination of ground water have been bumped from the spotlight. In their place we find something that is not currently doing harm, but may have the potential do harm many years from now and may be a pretend problem that doesn't exist.

To whose benefit is it that these priorities were realigned? Who benefits from the inane over-politicization of the greenhouse issue? There is speculation that "climate denialism" is part of a wider war on science where the red states are having the wool pulled over their eyes. Consider this: What if the real aim of the war on science was to get the intellectuals and pseudo-intellectuals on the blue team to passionately advocate for "climate science" before it's proven wrong? Breaking red's nearly non-existent faith in science is a vacant aim, yet if the war on science was able to damage blue's faith in science, that would be an altogether more meaningful goal.

- 
- [1] John Cook *et al*, Environ. Res. Lett., **8** (2013)
- [2] <http://www.drroyspencer.com/latest-global-temperatures/>
- [3] <http://climate.nasa.gov/scientific-consensus/>
- [4] <http://climateaudit.org/2010/12/26/nasa-giss-adjusting-the-adjustments/>
- [5] F. Parrenin *et al*, Science, 6123, **339** (2013)
- [6] A. P. Sokolov *et al*, J. Climate, **22** (2009).
- [7] <http://wattsupwiththat.com/2013/07/29/al-gores-reality-minions-think-the-north-pole-is-melting-except-thats-not-a-photo-of-the-north-pole/>