What Happened to Intellectual Curiosity?

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Anthropogenic Climate Change (ACC) is a contentious subject with two camps: the warmists and the skeptics. The warmists claim a 97% consensus among the world's scientists. Climatologist, Dr. Roy Spencer postulated that the so-called 97% consensus was not comprised of scientists who did an independent examination of the data but were merely not disputing the hypothesis. This paper examined the extent to which there was acceptance of the ACC hypothesis in the academic community and whether the skeptic position was acknowledged. The study found that the ACC hypothesis was overwhelmingly accepted with very little acknowledgement of the skeptic position.

Keywords: climate change, global warming, ACC, AGW, climate consensus, climate skeptics, CO2 & climate, climate policy, climate warmists, intellectual curiosity, ACC hypothesis, 97% consensus

STATEMENT OF THE PROBLEM

Climate change is controversial with two distinct camps, one being that anthropogenic climate change (ACC), aka anthropogenic global warming (AGW), is an undisputed fact (the Warmists), and the other being that climate change is real but mostly a natural phenomenon minimally impacted by human influence (the Skeptics).If this was merely confined to an academic debate, it would not be much of a serious matter other than to stimulate intellectual curiosity in search of the truth. But, it has become much more than an academic debate because of the push by the warmists to establish national and international policies to mitigate the impact of climate change, policies that can substantially ruin world economies and the freedoms and standard of living of societies throughout the world. The warmists would frame the issue of addressing climate change as a moral imperative to protect the planet from imminent catastrophic damage. The skeptics would frame the moral imperative as assessing the facts first before committing trillions of dollars to mitigate a problem that might not exist.

Initially, the intent was to do a study to determine the extent to which undergraduate students believed in climate change and the necessity to do something about it. As the literature review began, it was striking that most studies seemed to claim evidence of ACC exists but never provided such evidence. For example, The National Research Council (2011), made pronouncements about climate change and human causes without citing empirical studies. What was observed was an apparent blind acceptance of the anthropogenic climate change hypothesis without an analysis of the scientific evidence supporting the hypothesis. Statements of belief were observed, with citations to other works as evidence that turned out to be more than mere statements of belief. For example, one study claimed that there was overwhelming evidence of anthropogenic climate change and cited another study as such evidence. On checking the other study, it merely claimed the often-stated 97% consensus, without providing evidence of the 97% consensus, or any

other scientific study supporting ACC. Dr. Roy Spencer (2018) made an interesting comment. He said most of the 97% were not making independent conclusions based on an independent examination of the evidence but were merely not disputing the claims because they have not seen the evidence.

Additionally, no matter which database was searched, all that was found was article after article and study after study that had as their premise that ACC was real, supported by science, and a threat to the planet, without any supporting evidence other than someone else's claim. It is acknowledged that the databases to which this writer was directed, based on the keywords used, were primarily non-science in nature. This has led to a change the direction of the research.

This study aims to examine the extent to which the published studies, in non-science journals, premised on the reality of anthropogenic climate change and its threat to the planet, have bothered to check the scientific evidence or merely accepted what others have said about the matter. It would seem prudent that researchers doing studies with such a premise, would include in their literature reviews a substantial section of appropriate scientific studies providing evidence of ACC and the threat it poses to the planet rather than mere statements of faith that such evidence exists. It would also seem prudent to provide evidence and discussion supporting the skeptic position with a discussion of why one position is logically more compelling than the other.

REVIEW OF THE LITERATURE

Historical Background

A think tank called the Club of Rome, published a book in the early 70s called *The Limits to Growth* (Meadows, Meadows, Randers, and Behrens, 1972.)This work may have been the precursor to the U.N.'s Agenda 21.Agenda 21, published by the UN Conference on Development and Environment, held in Rio de Janeiro in June, 1992, is a detailed United Nations plan to promote "sustainable growth." Agenda 21 claimed that developed countries' consumption patterns were not sustainable and that the developing countries had no chance to catch up. It called for a change in consumption, massive redistribution of wealth, slower population growth, and a move from fossil fuels to more sustainable sources of energy. (http://www.un.org/documents/ga/conf151/aconf15126-4.htm)

The Club of Rome's warnings and solutions were quite similar to that outlined in Agenda 21. "Sustainable growth" was the goal and theme of both *The Limits to Growth* and Agenda 21. CO_2 emissions from fossil fuels was also mentioned by Meadows, et.al, as a pollutant but they did not go into much detail on it other than to say that the level of emissions was also growing exponentially. The solution offered by the Club of Rome was for the developed countries to slow their population growth, slow the consumption and use of fossil fuels, and transfer more wealth to underdeveloped countries so that their economic growth could reasonably catch up to the developed countries. Again, the problems and solutions proposed by The Club of Rome are strikingly similar to those found in Agenda 21.

The Anthropogenic Global Warming (AGW) hypothesis has its historical roots in the work of Dr. Roger Revelle (Vance, 2014) Revelle was an oceanographer with the Scripts Institute and was its director from 1950 to 1964.While at Scripts, Revelle observed the increase in atmospheric CO_2 and wondered about its impact on the atmosphere and the oceans. He wrote a paper on the increase ofCO_2 in the air and postulated regarding its impact on global warming. He had students participate in some of his research, including Al Gore, Jr. (Vance, 2014). The paper received wide acclaim and set environmentalists on making global warming a key issue. Al Gore was sufficiently impressed with Revelle's paper on CO_2emissions that it became the basis for his 1992 book *Earth in Balance* and the resulting slide show *An Inconvenient Truth* (Vance, 2014.)

By 1988, Revelle started to have doubts about CO2 being a serious greenhouse gas and began to write papers expressing his doubt, which fell short of repudiating his earlier work. Revelle ultimately apologized that his research led people in the wrong direction regarding global warming (Vance, 2014). Revelle's about face on global warming and the role of man-made CO_2 did not get the same attention that his earlier hypothesis received. Regardless of what Revelle said now, the environmentalists continued to accept his earlier work as gospel regarding CO_2 and global warming.

Besides impressing Al Gore, Revelle's work, blaming CO_2 for global warming, must have impressed someone at the United Nations for, in 1988, the U.N. formed the Intergovernmental Panel on Climate Change. (IPCC)(http://www.ipcc.ch/organization/organization.shtml.)

The U.N. appears to have found the "hot button" it needed to strengthen its relevance as a world body and help propel the implementation of Agenda 21.The IPCC has been the driving force behind the AGW movement ever since, such that global warming became a key plank in the U.N.'s Agenda 21 plan at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992.Beginning in 1995, the U.N. has been holding annual climate conferences with the participants of the Rio conference.

The Warmists

As stated above, there are two camps regarding Anthropogenic Climate Change (ACC), aka Anthropogenic Global Warming (AGW), the "Warmists" and the "Skeptics". The Warmist camp is rooted in the work of the U.N.'s Intergovernmental Panel on Climate change (Blanchfield, D.S., 2022), and the proclamations of the National Oceanic and Atmospheric Administration (NOAA) (2024).

The IPCC began in 1988, and sought to bring together scientists worldwide to study and evaluate the planet's climate. Since its beginning, the IPCC has issued six assessment reports, each becoming more alarming regarding the trend of the warming of the planet and the likely catastrophic impacts on humans and other plant and animal species (Blanchfield, D.S., 2022).The IPCC has concluded, and presents fairly convincing evidence, that the alarming progression in the planet's warming is due to the burning of fossil fuels and human agricultural practices that spew an ever increasing amount of CO_2, and other greenhouse gases, into the atmosphere (Blanchfield, 2022).The IPCC's assessment reports, apparently, have been convincing enough to convince 196world leaders to sign on to the Paris Climate Accord, in December 2015.Another convincing claim is scientists' often stated 97% consensus that CO_2 is causing runaway global warming. This claim is often stated in the academic articles as the basis for believing in Anthropogenic Climate Change (Wacholz, Artz, & Chene (2014); Sauer, Capps, D., Jackson, & Capps, K. 2021; Todd, C., & O'Brian, K. 2016; Bedford, D. 2016; Dessler, A. 2024; Sahin, İ. D. İ. L., & Kocak, O. 2024; Zimmerman, J. & Robertson, E. 2017).

Many "warmist" academics writing on climate change hold the skeptics in disdain, calling them science deniers (Zimmerman, J. & Robertson, E. 2017). Zimmerman and Robertson (2017) went as far as to say that climate change is so overwhelmingly accepted by the science community that discussions of climate change that might include the skeptic position should not be allowed in schools. They claim that climate change deniers "hold unscientific beliefs" without any scientific evidence supporting their beliefs. Paliewicz, et.al. (2017) were stronger in their disdain for skeptics saying that the skeptics "contradict reality" that ACC "presents perilous risks," and that the skeptics "distort credible consensual scientific conclusions using plainly absurd arguments." Nation and Feldman (2022) said "knowledgeable people agree" on ACC and "laypersons" dispute the ACC hypothesis, implying skeptics lack knowledge of the science. Nation and Feldman (2022) also said politicians in the Trump administration misrepresented ACC.

Many in the "warmist" camp seem alarmed at students' lack of concern regarding ACC. Beiser-McGrath, L., & Bernauer, T. (2021) worried that skepticism is more widespread than surveys indicate because respondents tend to misrepresent their skepticism. The authors were concerned that political leadership made climate change skepticism more socially acceptable, and that we need to "educate better." Dunlap (2009) stated that the United States has been a major impediment to climate change policy because of widespread skepticism due to strong media portrayal of ACC as questionable. Wachholz, et.al. (2014) said that "higher education needs to expand its educational efforts to ensure that all university graduates understand the scientific consensus and are actively engaged as part of the solution." In their paper, Painter, J., Ettinger, J., Holmes, D., Loy, L., Pinto, J., Richardson, L., Thomas-Walters, L., Vowles, K., & Wetts, R. (2023), makes it sound like skepticism is rampant and extensively represented in the various media. Painter, et.al., further state that there is a need to know the extent of the skepticism in order to develop ways to counter it. De Beukelaer, S., Vehar, N., Rollwage, M., Fleming, S. M., & Tsakiris, M. (2023) worried that many people completely deny ACC despite increasing evidence of ACC. Walter, L. F., Mifsud, M., Molthan-Hill, P., Nagy, G. J., Lucas Veiga Ávila, & Amanda, L. S. (2019) attempted to measure the extent

of skepticism in universities and found the response to ACC to be patchy. Zimmerman and Robertson (2017) said ACC should be taught in schools but students should not be allowed to discuss ACC vs. the skeptic position. Sahin and Kocak (2024) said ACC should be taught in schools and studied ways to teach ACC more effectively. Authors also called CO_2 a harmful gas. Whitehead, K., & Helling, M. K. (2023) stated that combating ACC should be taught as an ethical mandate. Skeeter, W. J., Reed, J. R., Cissell, J. R., Islam, R., & Keellings, D. J. (2019) found that only 60% of people believe humans cause climate change and said skepticism was due to a lack of knowledge. Bedford (2016) affirmed that skepticism was due to a lack of knowledge from not being properly educated and said we need to find ways to better educate college students.

The warmists tend to also be alarmists. Yang, H, Zhou, Y., & Li, Y. (2023) claimed to provide theoretically and numerically evidence that, in the long run, the only way to control global warming is to reduce greenhouse gases. Amnuaylojaroen, T (2023) claims greenhouse gases have resulted in extensively documented consequences and cite another work by himself and Parasin, N. (2022). Amnuaylojaroen (2022) claims an imminent and urgent threat of unprecedented and intense heat events exists. Hale, G. (2024) assumes ACC is a fact and that climate disasters resulting from ACC are increasing. Gupta, S. (2023) claimed 2023 was on track to be the hottest year on record. Beach, R. (2023) said we are heading toward a climate crisis. Cordeiro & Dotterl, predicted that surface temperatures would increase by 5.7 degrees Celsius by the end of the 21st century.

The Skeptics

Contrary to what the "warmists" would claim, the skeptic position is not that extreme, nor is the skeptic position without solid scientific evidence. Many in the skeptic camp are climate scientists in their own right, such as Dr. Roy Spencer, Dr. William Happer, Dr. Roger Pielke, Dr. Judith Curry, Dr. Willie Soon, Dr. Craig Idso, Dr. Bob Carter, Dr. Bjorn Lomborg, Dr. Pat Michaels, and many others, as well as professional meteorologists such as Joe Bastardi and Anthony Watts. In fact, in 2016, over 31,000 American scientists and academic professionals signed a petition urging President Obama to not spend money combating AGW (http://www.petitionproject.org}. More recently, over 1.600 scientists have signed a statement declaring there is no climate emergency (Global Climate Intelligence Group. 2023). The 31,000 plus signatories of the petition project and the 1,609 signatories of the global intelligence group should put to rest the notion that global warming is "settled science," embraced by 97% of scientists, as was stated by President Obama.

Warmists calling skeptics "science deniers" (Zimmerman, J. & Robertson, E. 2017), or uneducated people making absurd statements without scientific evidence (Paliewicz, et.al. 2017; Nation and Feldman. 2022), is far from the truth. For example, noted skeptic Roy Spencer has his Ph.D. in meteorology and has been working in the field for 40 years, and became the Principle Research Scientist at the University of Alabama in Huntsville (Spencer, R. 2008). Dr. Spencer does not deny the climate is changing or that CO_2 causes some warming. But he disputes the claims that CO_2 is the primary driver of climate and that we are facing a climate emergency (Spencer, R. 2018). Dr. Spencer states that the direct warming by CO_2 is minimal. The main question is whether such warming gets amplified by other mechanisms or is muted by the same mechanisms, i.e. the mechanics of cloud formations, water vapor, precipitation systems, etc. (Spencer, R. 2019). Dr. Spencer elaborates by saying the mechanics of cloud formations, and other systems, are not very well understood by scientists, at least not sufficiently enough to predict what will happen in response to the small amount of heating from CO_2.There are too many variables at play. Dr. Spencer (2019) also states that "satellite observations suggest an in-sensitive climate system" exists that minimizes the warming effect of CO_2 rather than amplifying it.If the climate is insensitive, the extra CO_2 we pump into the atmosphere cannot cause the observed warming of the last 100 years. Dr. Spencer believes the warming was caused by the Pacific Decadal Oscillation which produced stronger El Ninos (Spencer, R. 2019).

One of the favorite talking points of the warmers is that the excess CO_2 in the atmosphere will be absorbed into the oceans and cause the oceans to become acidic, harming marine life. Spencer (2018) and Steele (2017) refute the claim by describing the process whereby CO_2 is initially dissolved into 3 forms of inorganic carbon (DIC), making the surface water pH drop slightly. The DIC is then turned into particulate organic carbon through photosynthesis, which raises ph. This process creates and maintains a relative

balance of pH that does not change significantly over time (Steele, 2017). Ocean pH has dropped from 8.2 a few hundred years ago to 8.1 today. This is not a significant drop and the value remains alkaline, not acidic (Spencer, 2018). Additionally, research indicates that additional CO_2 entering the ocean is beneficial to marine life (Spencer, 2018).

Dr. Ferdinand Engelbeen (2007) makes a convincing case that the increase in CO_2 in the atmosphere is from burning fossil fuels. However, he further states that regardless of the origin, the increased CO_2 has a minimal influence on global temperature or climate (Engelbeen, 2009).

Dr. Javier Vinos (2024a) presents an extensive scientific explanation of how tree rings can be used as proxies for determining the level of solar activity and the period in which that solar activity occurred. Tree rings are not so effective as a proxy for temperature because too many other variables contribute to tree growth. Dr. Vinos explains that cosmic rays from Solar activity collide with nitrogen to form the Carbon 14 isotope (C^{14}). The C^{14} combines with Oxygen to form radioactive CO_2, which is breathed in by trees and used to develop the cellulose that forms the tree rings. Each tree ring records the amount of C^{14} in the atmosphere that year.C^{14}dating is also used to determine the time in which that growth occurred. Therefore, C^{14} can give us two measurements: the level of solar activity that year and the approximate year in which that solar activity occurred. By graphing these two measurements and comparing the graphs to recorded history, one can see that low levels of solar activity coincide well with periods of extreme cold and high levels of solar activity coincide well with warm periods. This suggests that solar activity is the primary mechanism for climate change.

In addition to academic articles published in journals and other media, a growing body of literature (books), mostly authored by Ph.D's in the climate sciences or related fields, presents the skeptic position and provides a wealth of scientific evidence in support. Some of the experts published are Spencer, R. (2017a, 2017b, and 2018), Bastardi, J. (2018 & 2019), Ball, T. (2014 & 2016), Bright-Paul, A. (2014), Morano, M. (2018), Salby, M. (2012), Vance, A. (2015), Berry, E. (2020), Wrightstone, G. (2021), Deweese, T. (2018), Moore, S. (2016), Goreham, S. (2017), Pielke, R. (2014), and Watts, A. (2017).These are just a few of the experts, most with Ph.D's, who have published books available in any bookstore or Amazon. For this reason, there is a serious question regarding the due diligence of academics who say skeptics are uneducated people who make absurd comments without supporting scientific evidence.

METHODOLOGY

The sample for this study is drawn from the Gale business database of journal articles, accessed through Austin Peay State University Library. Gale's business database contains 2,712 academic journals, with articles dealing with various business topics. The search topic was "climate change" in order to limit the sample to articles dealing with climate change in some manner. The Gale databases sort the articles in order of relevance and to the filters: journal articles, peer-reviewed, and full text available. The sample was also limited to peer-reviewed articles where the full text of the article was available, with its cited sources. The reasoning for this limitation is the fact that abstracts do not provide a list of cited sources, and abstracts often are too abbreviated to provide the writer a meaningful base to answer the research questions. While supposedly peer reviewed, book reviews and short, opinion only, articles with no references were excluded in the sample. A total of 270 papers were examined for the sample.

Each sampled paper was scanned, and those of the cited authorities, to answer the following questions:

1. Did the author accept the ACC hypothesis as fact? Yes or no.
2. Did the author cite authorities for the ACC hypothesis? Yes or no.
3. If Question #2 is "yes", Were the cited authorities available as full-text articles? Yes or no, otherwise "n/a."
4. If question #2 is "yes", Are cited authorities scientists? Yes or no, otherwise "n/a".
5. Did the author cite one of the UN IPCC assessments as the authority? Yes or No.
6. If Question #2 is "yes", Do cited authorities present empirical evidence? Yes or No, otherwise "n/a'.
7. Did the author acknowledge the skeptic position on ACC? Yes or No.

8. If question #7 is yes, did the author discuss both positions evenly? Yes or No, otherwise n/a.
9. If question #7 is yes, was the skeptic position portrayed accurately? Yes or No, otherwise n/a.
10. Were skeptic authorities cited? Yes or No.
11. If question # 7 was answered "yes", did the author provide reasoning for why the ACC hypothesis was more scientifically accurate than the skeptic position? Yes or No.

An Excel spreadsheet was used to record answers to the questions. Each line/row of the spreadsheet represented one record. The author's name and date of publication was recorded for the purpose of avoiding duplication of records.

The articles were reviewed in the order in which they appeared in the database because it was assumed that articles are submitted for publication randomly and enter the databases randomly. The order of appearance in the database was pure random established by the filters applied.

Question 1 was answered in the affirmative if the sampled paper's author made clear, declarative statements regarding ACC, or the context of mentions of ACC were clearly indicative of belief in ACC.

Question 3 was answered in the affirmative if the cited authority could be found on the internet as a full-text document. The question was answered negatively if there was only an abstract, and/or a subscription or payment was required to view the full text. Some searches received a "Page Not Found" message, generating a "no" for question 3.

Known weaknesses in the study are questions 4 and 6. If the surveyed studies cited the UN assessment reports, question 4 was answered with "yes" because the IPCC has scientists contributing to the report. Regarding question 6, the question could have been refined to be more precise. Cited authorities presenting observational data were regarded as providing empirical evidence. If the cited source was used for reasons other than to support the belief in ACC, the question regarding empirical evidence was answered "no" because the study merely relied on statements made by the cited authorities or the UN IPCC. For example, if the cited authority was used to support the claims of the impact of climate change in the future, question #6 was answered in the negative, because projections based on models are not empirical evidence. Question #6 does not address whether the author making the citation actually reviewed the empirical evidence, but only whether such evidence was available in the cited authority. Nor does the question address whether the empirical evidence links anthropogenic increases in CO_2 to global warming, climate change, or adverse weather. This study does not evaluate the data quality presented in cited authorities.

FINDINGS

TABLE 1
FREQUENCY DISTRIBUTION OF THE RESPONSES TO THE RESEARCH QUESTIONS

	Yes	No	N/A	% Yes	% No	% n/a
Question 1	259	11	0	95.9	4.1	0.0
Question 2	129	141	0	47.8	52.2	0.0
Question 3	97	29	144	35.9	10.7	53.3
Question 4	100	34	136	37.0	12.6	50.4
Question 5	95	175	0	35.2	64.8	0.0
Question 6	95	49	126	35.2	18.1	46.7
Question 7	31	239	0	11.5	88.5	0.0
Question 8	7	24	239	2.6	8.9	88.5
Question 9	7	24	239	2.6	8.9	88.5
Question 10	7	263	0	2.6	97.4	0.0
Question 11	1	30	239	0.4	11.1	88.5

No further statistical analysis was performed. The raw numbers speak for themselves. Of the 270 papers surveyed, 259, or 95.9%, clearly expressed acceptance of the Anthropogenic Climate Change hypothesis

without question. Of the 259 that expressed acceptance of the ACC hypothesis, only 129 (47.8%), less than half, bothered to cite an authority for the ACC hypothesis. Of the 129 cited authorities, only 100 were authored by scientists. Given that only 97 of the sample (35.9%) cited authorities with full-text documents, it begs the question of whether the authors actually checked the cited authority with any level of thoroughness. Were the authors accepting ACC blindly without examining the data?

Only 31, 11.5%, of the 270 papers surveyed acknowledged the skeptic position. Of that 31, only 7 (22.5%), or 2.6% of the sample, bothered to cite a skeptic authority or present the skeptic position in an objective manner, and only 1 out of 270 bothered to present an argument for why they thought the ACC position was more believable.

DISCUSSION

What is bothersome is that only 11.5% of the papers sampled acknowledged the skeptic position, only 2.6% of the papers sampled bothered to look at skeptic authorities, and only 1 (.4%) bothered to evaluate the skeptic argument. It is also bothersome that less than half of those who express belief in ACC cited any authority for such belief. This begs the question of where is the intellectual curiosity?

When there is an opposing position with sound scientific backing, how does the blind acceptance of the ACC hypothesis as the fundamental premise for the research impact the quality and soundness of the research presented in the sampled papers? This is a critical question when study authors are concluding, making predictions, and making recommendations based on climate projections that may not be accurate. For example, Al Gore predicted the Arctic would be ice-free by 2013 with Florida and New York under several feet of water from the rising sea level. What would people think if New York City and coastal areas of the East Coast, based on Al Gore's predictions, shuttered businesses, apartment buildings, homes, etc. and permanently evacuated, such that miles and miles of coastal areas became ghost towns, only to realize several years later the prediction never materialized?

CONCLUSION

There appears to be an overwhelming acceptance by the academic community of the ACC hypothesis without examining the data supporting ACC or the alternative explanations and their supporting data. Such lack of intellectual curiosity puts conclusions and recommendations based on such acceptance in question regarding their validity.

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