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Frightening Climate Story Lacks Depth of Climate Knowledge

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Abstract

This commentary is a conflation and revision of the author's essays previously published in the *American Thinker* and the *Washington Times*. To counter climate anxiety, this treatise reflects the limited predictions of climate models, particularly the atmosphere's temperature profile, where models are not merely uncertain but also show a common warming bias relative to observations. Also, regarding the physics, how precipitation will change with warming is not sufficiently understood. This suggests that models can seriously misrepresent certain fundamental feedback processes.

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Commentary

Terror in the troposphere is alive and well on US college campuses as revealed by former vice-president Kamala Harris during an October 2025 interview. According to Ms. Harris, her goddaughter, a junior in college, was experiencing climate anxiety, as were other students on campuses in the US and abroad.

The angst is not surprising. For decades, the narrative of impending global climate catastrophe has trudged ahead nearly unimpeded through academia. Politicians and professional societies joined the steady march along the way. Mainstream media dutifully disseminated the descending doom.

However, now a broader, less frightening view of the climate is emerging as a perspective that challenges the climate story status quo is gaining more attention.

For instance, more of the public are learning that the claimed and predicted global climate calamities are considerably overblown. (Note the recent epiphany of philanthropist Bill Gates, who according to the Associated Press (AP), still "thinks climate change is a serious problem but it won't be the end of civilization." Mr. Gates is refocusing his attention on the critical matter of reducing human suffering (McDermott, 2025).

The overestimation is because a large part of the airy disaster saga can be found in its edifice fashioned by modeling. In science, modeling produces a tentative representation of an observation or condition based on interpretation of available information.

Atmospheric modeling is typically of the mathematical kind. Such modeling involves sophisticated equations which necessitate assumptions and limitations and contain measured and approximated input quantities.

Most of my forty years of professional practice encompassed mathematical modeling of the

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dispersion of air pollutants. The air pollution models combined sources of contaminants (industrial smokestacks) with adverse weather conditions (stagnant air) and critical receptors (vulnerable communities) to produce a reasonable estimate of worst-case air pollution impacts.

This sort of modeling focused on predicting harmful effects over relatively short time frames (hours to one year) and on tight space scales (dozens of square meters to several square kilometers).

Compare this example of small-scale weather simulation to its large-scale global climate analog.

Both modeling methods attempt to faithfully replicate reality. And as understanding of the atmosphere increased and computer capacity expanded, both methods yielded dramatically improved outcomes. Both rely on careful, unbiased observations and interpretations of adequate scientific data. And both produce useful results to guide decisions involving public health and safety. These are some of the positive portions of modeling.

There are some negative parts.

Models typically lack adequate spatial resolution to capture small but potentially critical aspects of the atmosphere. Spatial inadequacy includes not just horizontal stretches across the earth's surface but its vertical expanse as well. And, within this three-dimensional space, constant changes are occurring with temperature, moisture, wind, pressure, and energy.

Lack of complete information and knowledge of the chemistry and physics of the air leads to serious uncertainties of future conditions. This is true for small-scale air-pollution modeling and even more so for global climate modeling. The atmosphere is inherently complex as is its modeling and the increase in time and distance affects forecast accuracy.

Yet, although changes that occur in the atmosphere occur in three dimensions, so much thinking on climate change happens on a two-dimensional level.

Certainly, academic and government studies delve into the dimensional complexity of the airy environment, but the study results seem to be delivered and interpreted in a simplistic way.

Take climate conclusions derived from the U.N. Intergovernmental Panel on Climate Change (IPCC) report. The IPCC report is the bible of climate change collective wisdom and its latest edition is the Sixth Assessment Report (AR6).

The synthesis of the full lengthy report to AR6 was released March 2023. And even though there are thousands of pages of mainly technical material including peer-reviewed references in the full multi-year state-of-the-science AR6, the relatively brief synthesis is typically heavily influenced by politics, highlighting the *governmental* portion of the Intergovernmental Panel on Climate Change.

From the skewed IPCC synthesis reports and similar politically biased narratives, many in the public, politicians, and news media conclude:

> The Earth's air temperature is rising to dangerous levels; this rise is mainly due to increasing levels of carbon dioxide in the atmosphere; the release of carbon dioxide by burning fossil fuels must end, as soon as possible; without cessation of fossil fuel use, much of life on Earth will die.

Some form of this "settled science" diatribe has been repeated almost *ad nauseum* for decades. Schooling from K-16 and into graduate education has been saturated with this mantra. Nevertheless, the reality of atmospheric science is far from this "two-dimensional" thinking. What is actually known is not so simple nor settled.

Like the air itself, a third dimension must be added to common climate-change thinking that includes the depth of the atmosphere.

This expanded, three-dimensional perspective derives from atmospheric modeling which is used to explore the dynamics of the global air and to forecast its future conditions. But even sophisticated mathematical climate modeling still lacks sufficient equations to match actual climate conditions.

The mismatch between model output and reality is recognized in *A Critical Review of Impacts of Greenhouse Gas Emissions on the U.S. Climate*, a July 2025 US Department of Energy report authored by five accomplished professionals in the fields of atmospheric science, physics, and economics. Although this document is facing challenges, its section on the "Vertical temperature profile mismatch" alerts the reader not only to the dramatic mismatch between model results and actual measurements, but also the fact that the atmosphere is three-dimensional and more complex than most people realize. Thus:

> "[t]he atmosphere's temperature profile is a case where [climate] models are not merely uncertain but also show a common warming bias relative to observations. This suggests that they misrepresent certain fundamental feedback processes" (US DOE, 2025).

My own peer-reviewed research which included 30-years (1991 - 2020) of low-level temperature conditions derived from southwest Pennsylvania twice-daily balloon-launch data confirms that changes in the lowest layer of the Earth's air defy incontrovertible conclusions. My study investigated atmospheric changes that impact the dispersal of air pollutants near the ground (Sadar, 2022, with additional discussion in Sadar, 2024).

These changes also relate directly to climate change mechanics because changes to the trends in near-surface temperature along with moisture content have a profound effect on the Earth's hydrologic (water) cycle.

Notably, perhaps the most uncertain of the feedback processes mentioned in the *Critical Review* is related to the water cycle.

Water in all its forms -- as solid ice and snow, as liquid cloud droplets, precipitation, and fog, and as invisible vapor -- continuously cycles its modes and in the process absorbs or releases energy. Water vapor and clouds account for most of the greenhouse effect.

In the recent book *Climate and Energy: The Case for Realism*, one of the US DOE *Critical Review* authors, climatologist Roy Spencer, noted that precipitation processes that restrict the accumulation of water vapor in the atmosphere:

> "are not known in enough detail to predict how the weak direct-warming effect of [carbon dioxide] will be either amplified or reduced by precipitation limits on water vapor. Climate models only crudely represent the conversion from water vapor to precipitation…. The actual physics that will determine how precipitation will change with warming are not even understood, let alone represented in climate models" (Beisner et al., 2024).

Clearly there is still a lot to be investigated about the workings of the atmosphere. And nuanced science must continue to be disseminated and understood regardless of politicized storylines that imply two-dimensional simplicity to the three-dimensional complexity of the climate.

Regardless, models as sophisticated tools in the scientist's toolbox are enormously beneficial. Air dispersion models have helped us to understand and reduce air contaminant concentrations. Climate models have greatly improved awareness of atmospheric dynamics and potential long-term changes.

This critique does not denigrate atmospheric modeling in any way or at any level, small or large. Rather it is more of a cautionary tale to reduce bombastic certitude and to add much-needed humility to the quantitative and qualitative analysis of the atmosphere. In the real world of heat and humidity, wind and pressure, land and sea, mountain and valley, no one knows with sufficient clarity the end of the climate story or even its subsequent chapters in the decades ahead.

As the saying goes, "there are two sides to every story." For the longest time the scary side with a cacophony of climate calamity had been the one pandered to students and the general public. But now it appears that, to the betterment of science and the serenity of society, the other side -- a less frightening, more realistic side -- of the complicated climate story is being given a fair public hearing.

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