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[The only reformatting here is to lift the heading from the first line of text.]

Thirty Years of Error?

In 1988, the Intergovernmental Panel on Climate Change (IPCC) was created by the UN under the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP) from a resolution by the UN General Assembly to address possible future, human-induced, climate change. The reports of the IPCC support the United Nations Framework Convention on Climate Change (UNFCCC). The objective of the UNFCCC is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would **prevent dangerous anthropogenic interference with the climate system.**" [Boldface added.]

The US Senate ratified the treaty becoming a party of the UNFCCC in 1992.

As readers of TWTW realize, the IPCC estimate future "anthropogenic interference with the climate system," by using complex mathematical models prepared by others. As discussed in past TWTWs, the mathematical models fail basic testing – they fail to describe what is occurring in the atmosphere with changing greenhouse gases.

More particularly, as discussed in the September 15 and September 22 TWTWs, the publicly archived model runs from the 20 modeling groups participating in the Coupled Model Intercomparison Project Phase 5 (CMIP5) of the IPCC, as a group, greatly overestimate the warming trend occurring in the atmosphere. When specifically tested against the warming of a layer of the tropical troposphere, at 200 to 300 millibar, about 30,000 to 40,000 feet (9100 to 12,200m), they greatly overestimate the warming trends compared with three different datasets from weather balloons taken over the past 60 years. The test can be referred to as the McKitrick-Christy Hypothesis Test.

This failure prompts the question why? Given the extent of modeling expertise, the number of modeling groups involved, and the years of investigation, one must assume that this overestimate is not from a mathematical error in the models. Rather, it may be a systematic error in the thinking that goes into the formulation of these models.

The history of the IPCC by its first chairman, Swedish meteorologist Bert Bolin, gives a clue. Writing a chapter in the Encyclopedia of Life Support Systems after he left the IPCC, he states:

"The realization that human activities might change the global climate was not new. Already at the end of the nineteenth century Svante Arrhenius, professor of chemistry at Stockholm's Högskola (University), deduced that the global mean temperature might increase by 5°C–6°C if the carbon dioxide concentration in the atmosphere were doubled."

This claim is not correct. As discussed in last week's TWTW, in his 1895 paper Arrhenius wrote:

"…temperature of the Arctic regions would rise about 8 degrees or 9 degrees Celsius, if the carbonic

acid [CO2] increased 2.5 to 3 times its present value. In order to get the temperature of the ice age between the 40th and 50th parallels, the carbonic acid in the air should sink to 0.62 to 0.55 of present value (lowering the temperature 4 degrees to 5 degrees Celsius).”

In his later 1906 paper Arrhenius revised his estimates, writing:

“In a similar way, I calculate that a reduction in the amount of CO2 by half, or a gain to twice the amount, would cause a temperature change of – 1.5 degrees C, or + 1.6 degrees C, respectively.”

Since Bolin died in 2007, we may never know if he intentionally misrepresented the writings of Arrhenius, a fellow Swede. The difference between what Arrhenius first wrote and later wrote is significant.

Regardless, when Arrhenius wrote, the concept of the planet cooling by outgoing infrared radiation was not fully developed. His calculations did not have the benefit of 20th century research on the absorption and re-radiation effects of greenhouse gases together in the atmosphere and individually. It was pure speculation.

Further, Bolin worked with Jule Charney, the head of the group that produced the 1979 Charney Report, which claimed that the modest effect of carbon dioxide would be greatly amplified by the major greenhouse gas, water vapor. However, this was pure speculation because there were no comprehensive measurements of atmospheric temperature trends.

Also, Bolin discusses a second assessment report produced in 1982 by US National Research Council and headed by Joseph Smagorinsky, Director of the Geophysical Fluid Dynamics Laboratory of the National Oceanic and Atmospheric Administration (NOAA), which is located at Princeton. It found nothing wrong with the Charney Report, except atmospheric greenhouse gases were rising more quickly than expected. It finds

“The 1979 Charney report estimated the equilibrium global surface warming from a doubling of CO2 to be ''near 3°C with a probable error of± l.5°C." No substantial revision of this conclusion is warranted at this time.”

The Smagorinsky report *“validated its climate models tests of the correctness of the models' representation of the physical processes and from comparisons of the models' responses· to known seasonal variations.”*

Interestingly, the report states:

“…Because decisions of immense social and economic importance may be made on the basis of model experiments, ***it is important that a comprehensive climate-model validation effort be pursued, including the assembly of a wide variety of observational data specifically for model validation and the development of a validation methodology.***

“Validation of climate models involves a hierarchy of tests, including checks on the internal behavior of subsystems of the model. The parameters used in comprehensive climate models are explicitly derived, as much as possible, from comparisons with observations and/or are derived from known physical principles. ***Arbitrary adjustment or tuning of climate models is therefore greatly limited.***

"The primary method for validating a climate model is to determine how well the model-simulated climate compares with observations. ***Comparisons of simulated time means of a number of climatic variables with observations show that modern climate models provide a reasonably satisfactory simulation of the present large-scale global climate and its average seasonal changes.***

"More complete validation of models depends on assembly of suitable data, comparison of higher-order statistics, confirmation of the models' representation of physical processes, and verification of ice models.

"One test of climate theory can be obtained from empirical examination of other planets that in effect provide an ensemble of experiments over a variety of conditions. ***Observed surface temperatures of Mars, Earth, and Venus confirm the existence, nature, and magnitude of the greenhouse effect.*** [Boldface was italics in the original.]

The IPCC and its followers have not performed rigorous testing required for model validation. The IPCC testing is limited to determining which better describes the data used, the models with a calculated CO2 effect or without a CO2 effect. This is hardly rigorous and involves the use of the same data as was used to tune the models. Such testing is a form of circular reasoning.

The McKitrick-Christy Hypothesis Test avoids using data that was used to tune models, thus avoiding circular reasoning. Further the McKitrick-Christy test uses three datasets and shows that, whatever amplification is occurring, it is very modest. There is no empirical justification for the statement that a *"doubling of CO2 to be ''near 3°C with a probable error of± l.5°C."*

Modern atmospheric temperature trends include the total effect of greenhouse gases, including CO2 and water vapor. Perhaps this is why the IPCC and its followers stick with surface measurements starting in the 1880s. The warming of the atmosphere does not indicate a "dangerous anthropogenic interference with the climate system."

The above analysis indicates that the IPCC and its followers such as the US Global Change Research Program (USGCRP) rely on 19th century thinking and 19th century measurement techniques. As such, the IPCC maintains erroneous scientific thinking for its thirty years of existence.

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