



The IPCC operates from a false assumption

Research

Climate Model Ghosts

“Who refuses to do arithmetic is doomed to talk nonsense.”

-- John McCarthy

The forecast of man-made global warming through CO₂ emissions is alarmist. It is based on horror stories and was produced by scientists who are not able to properly evaluate their own work. There is no need for concern about the climate.

Let me introduce myself. I am a physical methods experimental chemist at the SLAC National Accelerator Laboratory, Stanford University. My work involves experiment, measurement, and theory. As in all of science, the struggle in such work is accuracy. How accurate are the measurements? How accurate is the physical description provided by the theory? Knowledge comes only with accuracy.

In 2001 I decided to investigate the claims about CO₂ emissions and climate. I simply wanted to know

whether the alarm was justified. So, I studied. By 2003, I knew the alarm was not justified.

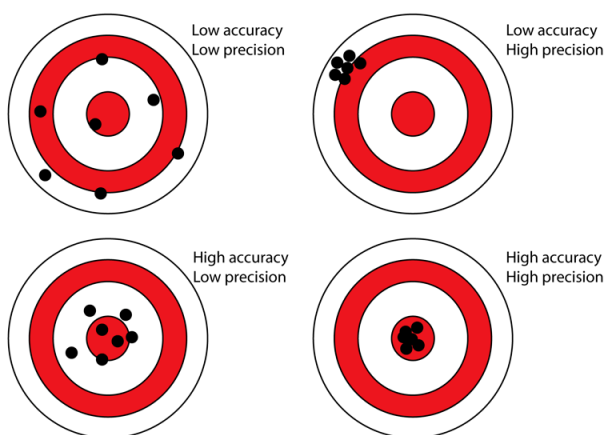
The reason is this: The entire confidence that human CO₂ emissions cause the climate to warm depends upon the accuracy of climate models. Climate models are an expression of the physical theory of climate. They are currently the only source of information that can tell us how the climate might react to human CO₂ emissions.

What I discovered is that if the climate models are magnifying lenses, then using them to see the effect of CO₂ on the climate is like trying to see atoms using a jeweller's loupe.

Two weeks ago, my study of climate models passed peer review and was published in the Atmospheric Sciences section of *Frontiers in Earth Science*. It answers the questions: how reliable are the climate models, and; how much credit should we give to their predictions of a hot CO₂-driven future? The answers are: they are not reliable, and no credit. More on this below.

In the course of this work, I discovered that climate scientists have never examined the accuracy of their own climate models.

Accuracy is how close an answer is to the true value. Precision is how well various answers agree with one another. The picture below shows the difference between accuracy and precision. Up until today climate models have only been evaluated for their precision; never for their accuracy.



Source: Mr. Evan's Science Website:
<https://sites.google.com/a/apaches.k12.in.us/mr-evans-science-website/accuracy-vs-precision>. Used with permission

Of course, we need to know about climate model accuracy if we are to believe their predictions about CO₂ emissions and climate warming. But given the poor way climate modelers have judged their models, all we know for sure about the behavior of climate

models is contained in the low accuracy/high-precision corner of the graphic

But the reality is worse than that. The IPCC is guilty of the Texas Sharpshooter fallacy. This is the story of the Texas cowboy who shoots holes into the side of a barn. He then draws a target around the holes, being sure that most of them are in the bullseye. In the low accuracy/high precision corner of the picture, we do not even know where the CO₂ bullseye is, relative to the cluster of climate model holes. It could be kilometers away.

I finished this study in 2013, and sent it to a science journal. However, the editor refused to even consider the manuscript. So began my six years journey through 9 journal submissions, 30 reviewers, and their 35 reviews to which I was required to respond. So, one can say that I consulted with many climate scientists before publishing this study.

The study is about error analysis. However, about 23 of the 30 reviewers were apparently climate modelers. They proved to be shockingly ignorant about how to evaluate physical error. They made mistakes one would expect of a totally naive student who had never before taken a laboratory science course.

These particular reviewers did not understand the difference between accuracy and precision, illustrated above. They did not understand physical error. They did not know how to transmit error through a calculation. They did not understand the meaning of uncertainty in a result. These standard practices of science were foreign to them. Their reviews are monuments to incompetence.

The methods of evaluating error are absolutely basic skills for a working scientist. They are what must be known to determine the accuracy of a result. This set of reviewers knew none of them. They are unable to evaluate the reliability of their own models.

For the scientists and engineers reading this, you will find this striking ignorance fully documented in the files available at the website URL appearing at the end of this essay.

However, at *Frontiers in Earth Science*, three of the four reviewers did indeed understand how to analyze error. They proved this in the knowledgeable and constructive way in which they engaged the study. Three reviewers at other journals also did so, but they were a minority amongst the incompetent majority.

In my study, I used the results of a published climate model calibration experiment. This experiment showed how much error an average climate model makes each year in describing the heat energy in the atmosphere.

This error proved to come from a mistake in the physical theory inside every model. Unfortunately, the state of climate physics is such that no one knows where this mistake occurs. However, it is present.

When climate models calculate the future climate, they do so in a step-by-step way. The error in the theory distorts the accuracy of every single step. The distortions then accumulate with every step, which puts uncertainty into the calculated climate. How wrong is it becoming, step-by-step? No one knows. Climate physics is not advanced enough to provide an answer.

Uncertainty is a measure of this ignorance. So, the uncertainty also accumulates with every step made by every climate model as it predicts the future climate. Uncertainty accumulates because our ignorance of the amount of inaccuracy increases with every step.

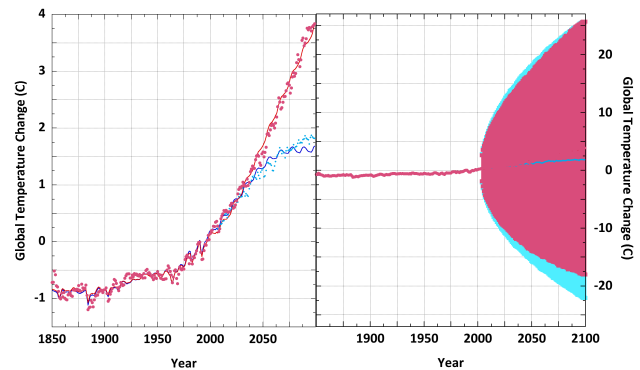
Uncertainty can be calculated using a standard process called propagation of error. Here, the thermal error of the model is pushed through the temperature projection to determine its reliability. This method, although widespread in physics, chemistry, biology, and all of engineering, is also foreign to climate modelers.

The picture below shows the step-by-step growth of ignorance/uncertainty in a climate model projection of future global air temperature increases from CO₂ emissions.

The specific model I chose for the example is the EC-Earth European Community Earth-System climate model. This is an advanced climate model developed

by a consortium of 27 laboratories housed in ten European countries. Switzerland is not a consortium member, and none of the laboratories are Swiss.

EC-Earth is used to make predictions and inform policy about the effect of CO₂ emissions on the climate. There is no need to be especially concerned about the European origin of EC-Earth, because all the rest of the climate models in the world perform similarly.



On the left, the points are EC-Earth projections of two so-called RCP scenarios promoted by the IPCC. The red points are RCP8.5 which supposes that CO₂ emissions will grow rapidly through year 2100. The blue points are RCP4.5 which supposes that CO₂ emissions level off just before the end of the century.

The lines through the points were made using a simple equation that successfully reproduces the air temperature projections of advanced climate models. This equation is then used to estimate the uncertainty caused by the thermal mistake made by the theory inside climate models.

On the right side, the wide hemispheres starting from 2005 are the uncertainty envelopes produced when the mistake climate models make in clouds is propagated through their air temperature projections.

From the right-side graph, the EC-Earth RCP8.5 air temperature projection says that by the year 2100, high CO₂ emissions will make the air 3.8 C warmer, but plus or minus 22 C. In numbers, this is 3.8 ± 22 C.

What does it mean to say that the uncertainty is ± 22 C? First, it does not mean, at all, that the air might be 22 C warmer or colder. Instead, it means that by projection year 2100 the uncertainty is so large that no

one can know what the air temperature will be. The 3.8 C has no meaning.

The same result is found with the RCP4.5 scenario of CO₂ emissions. There, EC-Earth says that the air will be 1.8±23 C warmer in the year 2100. Once again, ±23 C tells us that this projection has no meaning. The uncertainty is so large that any knowledge of possible air temperature is absent. Our ignorance is total.

All of this means that EC-Earth is utterly unreliable. It cannot tell us what CO₂ emissions will do in the future. It cannot tell us what CO₂ emissions have done in the past. It cannot say anything about air temperature.

The same is true of every single advanced climate model in the world. Climate models cannot explain any of the 20th century warming. They cannot predict the effect, if any, of CO₂ emissions in the 21st century. They are far too unreliable.

The whole scare about future warming from CO₂ has been built upon deeply faulty climate models. It has been built on nothing; nothing but frightening pictures produced by scientists who do not know how to properly evaluate their own work.

CO₂ has increased in the atmosphere from about 295 ppm 150 years ago, to nearly 410 ppm today. Even though there is no good theory about CO₂ and the climate, we can still check to see if the climate is behaving in an unusual way.

The answer is that nothing unusual is happening. The rate of sea level rise has hardly changed for 100 years and more. There are no unusual numbers or intensities of floods, droughts, heatwaves, hurricanes, cyclones, or tornados. Kiribati and Tuvalu are not disappearing below the waves.

We can look into the deep past, to the seven ice ages that have occurred over the last one million years. In every case the air temperature dropped first, followed many years later by falling CO₂ levels. When the ice ages ended the air temperature increased first, and again the CO₂ rose many years later. Atmospheric CO₂ did not have any noticeable causal impact on the ice ages. It was evidently a passive spectator.

Even into the deepest past of billions of years ago, there is no evidence for any connection between atmospheric CO₂ and air temperature.

At the end, we find that there is left no reason to suppose that any of the warmth of the recent past is due to human CO₂ emissions, nor is there any known reason to be concerned about the future.

We finish with this: all the blaming, all the character attacks, all the damaged careers, all the excess winter fuel-poverty deaths, all the men, women, and children continuing to live with indoor smoke, all the enormous sums diverted, all the blighted landscapes, all the chopped and burned birds and the disrupted bats, all the huge monies transferred from the middle class to rich subsidy-farmers, all of that was evidently for nothing.

There is no reason for parents or grand-parents to fear for their children or grand-children. There is no reason for young adults to despair about their lives. There is no reason to avoid the joys of raising a family, or the happiness of sending your children off into the future.

There is certainly no reason to frighten school children with closet-monster stories and lessons about approaching climate doom.

So, in the absence of any reason to fear CO₂ emissions, all of you, dear readers, should get on with your lives, taking joy in one another and filled with a fully justifiable hope for a wonderful future.

Reviewer files: <https://uploadfiles.io/f5luc> (45 MB zip file, scanned free of viruses using Webroot)

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