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Mathematical modeling illusions

Guest Blogger / 5 days ago January 29, 2019

The global climate scare – and policies resulting from it – are based on models that *do not work*

Dr. Jay Lehr and Tom Harris

For the past three decades, human-caused global warming alarmists have tried to frighten the public with stories of doom and gloom. They tell us the end of the world as we know it is nigh because of carbon dioxide emitted into the air by burning fossil fuels.

They are exercising precisely what journalist H. L. Mencken described early in the last century: “The whole point of practical politics is to keep the populace alarmed (and hence clamorous to be led to safety) by menacing it with an endless series of hobgoblins, all of them imaginary.”

The dangerous human-caused climate change scare may well be the best hobgoblin ever conceived. It has half the world clamoring to be led to safety from a threat for which there is not a shred of meaningful physical evidence that climate fluctuations and weather events we are experiencing today are different from, or worse than, what our near and distant ancestors had to deal with – or are human-caused.

Many of the statements issued to support these fear-mongering claims are presented in the [U.S. Fourth National Climate Assessment](#), a 1,656-page report released in late

November. But none of their claims have any basis in real world observations. All that supports them are mathematical equations presented as accurate, reliable models of Earth's climate.

It is important to properly understand these models, since they are *the only basis for the climate scare*.

Before we construct buildings or airplanes, we make physical, small-scale models and test them against stresses and performance that will be required of them when they are actually built. When dealing with systems that are largely (or entirely) beyond our control – such as climate – we try to describe them with mathematical equations. By altering the values of the variables in these equations, we can see how the outcomes are affected. This is called sensitivity testing, the very best use of mathematical models.

However, today's climate models account for only a handful of the hundreds of variables that are known to affect Earth's climate, and many of the values inserted for the variables they do use are little more than guesses. Dr. Willie Soon of the Harvard-Smithsonian Astrophysics Laboratory lists the six most important variables in any climate model:

- 1) Sun-Earth orbital dynamics and their relative positions and motions with respect to other planets in the solar system;
- 2) Charged particles output from the Sun (solar wind) and modulation of the incoming cosmic rays from the galaxy at large;
- 3) How clouds influence climate, both blocking some incoming rays/heat and trapping some of the warmth;
- 4) Distribution of sunlight intercepted in the atmosphere and near the Earth's surface;
- 5) The way in which the oceans and land masses store, affect and distribute incoming solar energy;
- 6) How the biosphere reacts to all these various climate drivers.

Soon concludes that, even if the equations to describe these interactive systems were known and properly included in computer models (they are not), it would still not be possible to compute future climate states in any meaningful way. This is because it would take longer for even the world's most advanced super-computers to calculate future climate than it would take for the climate to unfold in the real world.

So we could compute the climate (or Earth's multiple sub-climates) for 40 years from now, but it would take more than 40 years for the models to make that computation.

Although governments have funded more than one hundred efforts to model the

climate for the better part of three decades, with the exception of one Russian model which was fully “tuned” to and accidentally matched observational data, not one accurately “predicted” (hindcasted) the *known past*. Their average prediction is now a full 1 degree F above what satellites and weather balloons *actually measured*.

In his February 2, 2016 testimony before the U.S. House of Representatives Committee on Science, Space & Technology, University of Alabama-Huntsville climatologist Dr. John Christy compared the results of atmospheric temperatures as depicted by the average of 102 climate models with observations from satellites and balloon measurements. He concluded: “These models failed at the simple test of telling us ‘what’ has already happened, and thus would not be in a position to give us a confident answer to ‘what’ may happen in the future and ‘why.’ As such, they would be of highly questionable value in determining policy that should depend on a very confident understanding of how the climate system works.”

Similarly, when Christopher [Monckton tested the IPCC approach](#) in a paper published by the Bulletin of the Chinese Academy of Sciences in 2015, he convincingly demonstrated that *official predictions of global warming had been overstated threefold*. (Monckton holds several awards for his climate work.)

The paper has been downloaded 12 times more often than any other paper in the entire 60-year archive of that distinguished journal. Monckton’s team of eminent climate scientists is now putting the final touches on a paper proving definitively that – instead of the officially-predicted 3.3 degrees Celsius (5.5 F) warming for every doubling of CO₂ levels – there will be only 1.1 degrees C of warming. At a vital point in their calculations, climatologists had neglected to take account of the fact that *the Sun is shining!*

All problems can be viewed as having five stages: observation, modeling, prediction, verification and validation. Apollo team meteorologist Tom Wismuller explains: “Verification involves seeing if predictions actually happen, and validation checks to see if the prediction is something other than random correlation. Recent CO₂ rise correlating with industrial age warming is an example on point that came to mind.”

As Science and Environmental Policy Project president [Ken Haapala notes](#), “the global climate models relied upon by the IPCC [the United Nations Intergovernmental Panel on Climate Change] and the USGCRP [United States Global Change Research Program] have not been verified and validated.”

An important reason to discount climate models is their lack of testing against historical data. If one enters the correct data for a 1920 Model A, automotive modeling software used to develop a 2020 Ferrari should predict the performance of a 1920 Model A with reasonable accuracy. And it will.

But no climate models relied on by the IPCC (or any other model, for that matter) has

applied the initial conditions of 1900 and forecast the Dust Bowl of the 1930s – never mind an accurate prediction of the climate in 2000 or 2015. Given the complete lack of testable results, we must conclude that these models have more in common with the “[Magic 8 Ball](#)” game than with any scientifically based process.

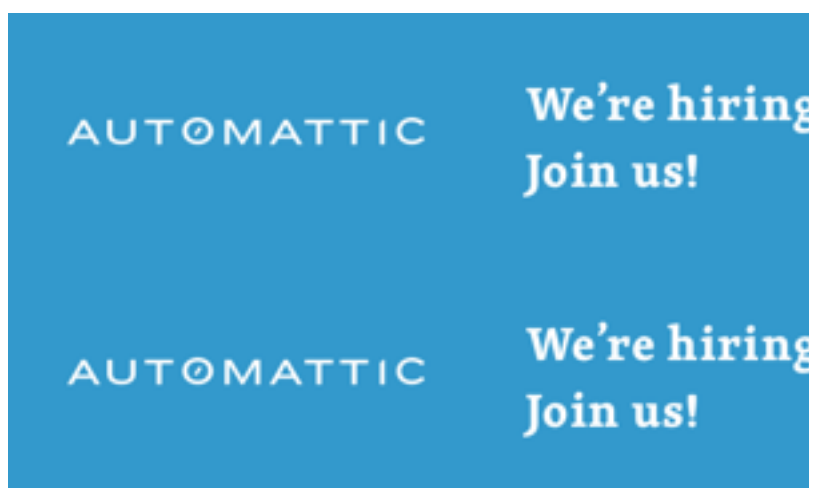
While one of the most active areas for mathematical modeling is the stock market, no one has ever predicted it accurately. For many years, the Wall Street Journal chose five eminent economic analysts to select a stock they were sure would rise in the following *month*. The Journal then had a chimpanzee throw five darts at a wall covered with that day’s stock market results. A month later, they determined who preformed better at choosing winners: the analysts or the chimpanzee. The chimp usually won.

For these and other reasons, until recently, most people were never foolish enough to make decisions based on predictions derived from equations that supposedly describe how nature or the economy works.

Yet today’s computer modelers claim they can model the climate – which involves far more variables than the economy or stock market – and do so *decades or even a century* into the future. They then tell governments to make trillion-dollar policy decisions that will impact every aspect of our lives, based on the outputs of their models. Incredibly, the United Nations and governments around the world are complying with this demand. We are crazy to continue letting them get away with it.

Dr. Jay Lehr is the Science Director of [The Heartland Institute](#) which is based in Arlington Heights, Illinois. Tom Harris is Executive Director of the Ottawa, Canada-based [International Climate Science Coalition](#).

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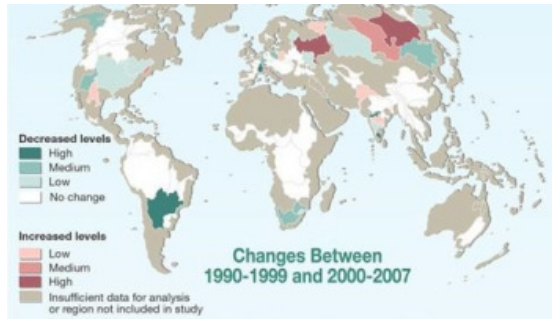
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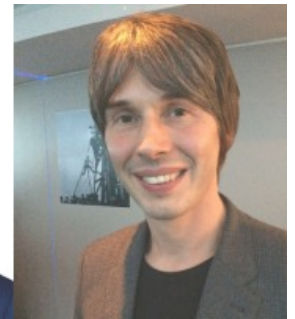
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January 29, 2019 in Climate Models. Tags: Heartland, Monckton, Willie Soon

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189 thoughts on “Mathematical modeling illusions”

Gerald Machnee January 29, 2019 at 6:18 pm

And there are those who claim their models are “state of the art”.

[Reply](#)

Rocketscientist January 29, 2019 at 6:32 pm

That says more about the state of their art. How embarrassing.

[Reply](#)

Curious George January 30, 2019 at 7:56 am

Art being defined as a cross submerged in urine?

[Reply](#)

paul courtney January 30, 2019 at 11:58 am

George: For CliSci, art is feces smeared on graph paper. Every now and again that sh*t gets adjusted. Nobody said saving the planet would leave climate scientists with clean hands.

[Reply](#)

Jim of Colorado January 30, 2019 at 5:11 pm

Absolutely true. The models cannot successfully address the number of variables in the climate. I had hydrological modelers working for me for many years and we commonly noted that models are ALWAYS wrong but sometimes they are useful.

[Reply](#)

kenw January 29, 2019 at 6:35 pm

...because the State of the Art is more Art than Science.

[Reply](#)

SocietalNorm January 29, 2019 at 7:46 pm

Art can model reality. Climate models don't.

[Reply](#)

Leo Smith January 30, 2019 at 3:36 am

[Climate] Science today is less the State of the Art, than the Art of the State....

[Reply](#)

Andy Pattullo January 29, 2019 at 6:53 pm

Current climate models are as accurate a description of real world climate as are the images of muscular handsome men in fashion magazines an accurate description of the average shopper at Walmart trying to cram as many bags of on-sale nacho chips into their cart next to the cheap-as-can be beer.

[Reply](#)

Shawn Marshall January 30, 2019 at 5:34 am

hey – I resemble that remark

[Reply](#)

co2isnotevil January 29, 2019 at 7:13 pm

“state of the art”

Certainly not the GISS ModelE. I've looked under the hood and the spaghetti

code written in a 1960's dialect of Fortran with many thousands of baked in floating point constants is certainly not state of the art. Even the ongoing conversion to a newer version of Fortran by upgrading goto's into do loops is still ancient by modern standards.

[Reply](#)

AZ1971 January 30, 2019 at 7:04 am

I love that there are still individuals of a certain age who know what Fortran is, or Cobol, or C+, or any of the other “dead” computer languages that some legacy institutions still rely on because updating to newer software code would be prohibitively expensive. I had to chuckle about the goto's and do loops—I'm showing my age knowing about those basic (and BASIC) coding functions.

[Reply](#)

co2isnotevil January 30, 2019 at 9:35 am

Modern object oriented coding techniques also rely heavily on unit tests and comprehensive regression testing, which the development environment of ModelE lacks.

Of particular concern to me regarding the veracity of its results are the thousands of undocumented and weakly documented floating point constants baked into the code, especially in RADIATION.f which comprises the core of the radiant model it uses.

[Reply](#)

Robert of Texas January 30, 2019 at 11:54 am

You forgot ALGOL, RPG, PL/I, PASCAL, SNOBOL, LISP, Prolog, good old just plain C, PDP11/70-Assembler, IBM360-Assembler, and my absolute favorite – and VAX Macro. The list likely goes on but I am too old to remember all of those I learned.

If you mention FORTRAN, you really need to add the post-fix to identify how old you really are: FORTRAN IV, FORTRAN 66, FORTRAN 77...etc. I started on FORTRAN IV.

I hated COBOL... I use to tell interviewers I didn't know COBOL just to avoid having to program in it. That and RPG – bleh.

ALGOL was fun...it was the only programming language I ever learned that arguments were passed “By Name”. I will skip the details, but you could essentially pass the number “1” as an argument to a subroutine (that names it variable “A” for example), modify it, and then return the result storing it under the number “1” – so the value of the number”1” could have the value “2” in the rest of your code. Try debugging THAT! LOL

[Reply](#)

BOBBY W ALLEN January 31, 2019 at 2:27 am

Oh, my goodness. Memories come flooding back. I'm 82 and first started programming in FORTRAN (II ?) in 1963 on an IBM 1620. It's been truly remarkable, watching the evolution of both hardware and software over the last 50 + years.

Crispin in Waterloo January 30, 2019 at 1:27 pm

My first computer booted in CPM. It had a massive 256 KB of RAM. Four times as much as a Commodore 64!

[Reply](#)

Macusn January 30, 2019 at 6:14 pm

We have an old Osborne computer in the closet. Have not fired it up for years.

https://en.wikipedia.org/wiki/Osborne_Computer_Corporation

Greg F January 30, 2019 at 10:20 am

“ Even the ongoing conversion to a newer version of Fortran by upgrading goto’s into do loops is still ancient by modern standards.

Goto’s? When I was in college back in the day of punch cards a “goto” got you an automatic F.

[Reply](#)

Bob Armstrong February 2, 2019 at 9:52 pm

I’ve had that discussion with Roy Spencer who is proud to have gotten his Fortran code down to under 10,000 lines .

In an APL like CoSy , I remain convinced that a competitive open planetary model would not take more than a few pages of succinct and therefore understandable definitions — as or more succinct than the physics could be expressed in any traditional textbook . And , particularly in CoSy , built in open to the chip Forth , could be efficiently mapped to any of the new “tensor” and other parallel architectures coming out .

See , eg: <http://cosy.com/CoSy/MinnowBrook2013.html#PlanetTemp> , and quite a bit of other material on the website .

[Reply](#)

Gary Ashe January 29, 2019 at 7:33 pm

Yeah “post modern” art.

Like when a pile of bricks or skip ratted junk is piled “artistically.

[Reply](#)

Leo Smith January 30, 2019 at 3:35 am

They are.

Unfortunately the scientists using them are second and third rate and do not really understand the implications of the assumptions they are forced to make in order to construct linear large scale approximations to non linear small scale effects.

We are with climate science about where Leonardo da Vinci was with aeroplanes. We know it ought to work if only we had some computationally efficient and reliable way of modelling it.

We don't, any more than Leonardo da Vinci had a lightweight portable power unit that would last for hours on a minimal weight of fuel.

And with respect all the people here who are honestly and diligently searching for better models are almost certainly on a hiding to nothing. We have the right models. They are just incomputable. Their chaotic nature is almost certainly enough to account for ALL the climate fluctuations in the last 10,000 years.

Trying to find the signature of various external forcings in that is probably a waste of time too. They are swamped by the chaotic nature of the non linear feedback that controls climate.

[Reply](#)

Steve O January 30, 2019 at 5:12 am

“We are with climate science about where Leonardo da Vinci was with aeroplanes.”

I find that point to be penetrating.

[Reply](#)

co2isnotevil February 2, 2019 at 8:12 pm

The state of climate science is more like the state of Astrophysics per the church back when an Earthcentric Universe was ‘settled’ science. There’s no doubt that de Vinci had a better handle on airplanes than the IPCC and its self serving consensus has on climate science.

[Reply](#)

Eamon Butler January 31, 2019 at 5:29 am

At any given time the Models are “state of the art” but all it tells us is, what they used to put all their faith in, was not so reliable after all. Today’s “state of the art”, is tomorrow’s joke.

Richard Greene January 31, 2019 at 9:53 am

The authors are very confused.

They apply logic and reason
to a leftist boogeyman: CO2

The models do work.

They make scary forecasts.

That's exactly what their creators want.

They don't want accurate
average temperature predictions.

Accurate predictions would tell us what
actual temperature data already reveal:
Mild, harmless, intermittent warming.

If the creators of the models
actually wanted accurate
average temperature forecasts,
they would eliminate that
fictional water vapor positive feedback
effect, and the forecasts would at
least seem accurate.

I say "seem accurate"
because no one knows the causes of
climate change, other than a list
of the usual suspects, so it is impossible
to develop the correct climate physics model.

Without a correct climate physics model,
any global climate circulation model
is just a computer game making
wild guess "predictions"
that would be "right"
only by chance.

My climate science blog:
<http://www.elOnionBloggle.Blogspot.com>

D. J. Hawkins January 29, 2019 at 6:19 pm

If you have 100 years of climate data, and you train/develop your model on the middle 50 years, you should be able to then, without tweaking any of the parameters, get the two 25 year tails if your model is any good. I'm not aware of anyone even attempting this, let alone successfully.

[Reply](#)

Lance Flake January 30, 2019 at 8:13 am

Unfortunately the basic problem is that we don't have enough climate data (proxies don't count) to cover all the natural cycles involved. What data we do have is so limited in coverage, accuracy and resolution that it can only be used for crude purposes. That makes any model training using the data good only for basic normalization. Since the models can't be accurately trained they can't be relied on for any accurate uses. That is why they will never hindcast correctly and can never be used for anything more than simple, rough-approximation forecasting. It's not a matter of bigger computers or run time. They fail on basic premises.

[Reply](#)

Hivemind January 29, 2019 at 6:26 pm

Irrespective of the technical difficulties with making the models predict what actually happened, we have the more substantial problem that the models have (almost) all been programmed with far too high a value for water feedback. They had to do this to get the calamity they wanted & were sure would happen. If they couldn't predict this calamity, their funding would have dried up.

[Reply](#)

damp January 29, 2019 at 6:50 pm

This is something we can actually predict with confidence, Hivemind. When you pay people to find X, people will find X.

[Reply](#)

ALLAN MACRAE January 29, 2019 at 9:29 pm

Excerpt from this very good article:

“Monckton’s team of eminent climate scientists is now putting the final touches on a paper proving definitively that – instead of the officially-predicted 3.3 degrees Celsius (5.5 F) warming for every doubling of CO₂ levels – there will be only 1.1 degrees C of warming.”

Christy and McNider (2017) and Lewis and Curry (2018) both made the very conservative assumption (for the sake of argument and simplicity) that ~ALL net global temperature increases are due to increasing atm. CO₂, and thus calculated that MAXIMUM UPPER BOUND value of climate sensitivity equals just over 1C/(2xCO₂). These are full-Earth-scale tests, not subject to scale-up and other errors.

Climate computer models, which to date have run far too hot and demonstrated NO predictive credibility, employ values of climate sensitivity to CO₂ that are several times higher than ~1C/doubling, and thus create false alarm.

The rational conclusion is that CLIMATE SENSITIVITY TO ATMOSPHERIC CO₂ IS SO LOW THAT THERE IS NO REAL CO₂-DRIVEN GLOBAL WARMING CRISIS.

Regards, Allan

[Reply](#)

John Peter January 30, 2019 at 12:40 am

‘instead of the officially-predicted 3.3 degrees Celsius (5.5 F) warming for every doubling of CO₂ levels – there will be only 1.1 degrees C of warming.’ Sounds like Lindzen’s iris hypothesis to me. As I recall, it was around 1.1 C for doubling of CO₂.

[Reply](#)

ALLAN MACRAE January 30, 2019 at 5:14 am

My best guess is that ~1C/(doubling of atm. CO₂) is the UPPER BOUND maximum value for climate sensitivity and that the actual magnitude is

between 0C and 1C and much closer to 0C. This is moot because even at the maximum 1C/doubling, there is no catastrophic global warming crisis.

Then there is the awkward observation (MacRae 2008, Humlum et al 2013) that CO2 trends LAG temperature trends by ~9 months in the modern data record, and ~800 years in the ice core record. When someone tells me “we’re all gonna die” because the future is causing the past, I tend to back away slowly from that shaky hypothesis.

[Reply](#)

Alasdair January 30, 2019 at 3:04 am

Hivemind:

Yes. Water feedback is my particular obsession. IMO this feedback is NEGATIVE as the atmospheric Rankine Cycle ensures that any increase in energy input from whatever source results in an increase in dissipation of energy at CONSTANT temperature.

The temperature being controlled by the prevailing pressure which is determined by gravity.

The evidence for this lies in the fact that a kettle at sea level always boils at 100 C no matter how much you turn the heat up. This being but one datum point on the graph of boiling temperature against altitude. (aka: pressure change).

Leads, lags and other influences obviously blurs this fundamental fact.

[Reply](#)

Bob Armstrong February 2, 2019 at 1:40 pm

Any model which does not include gravity as the cause for the planetary temperature profiles , including their atmospheres of whatever composition is wrong from the start .

The tradeoff of gravitational and kinetic energy is universal and trivial to understand . As I put it at <http://cosy.com/#PlanetaryPhysics> ,

“ . Particles moving “up” in a gravitational field slow down , ie: cool ;

. Those moving down speed up , ie: heat .

Newton’s Law of Gravity which explains how much faster satellites go in lower orbit also explains how much faster molecules go at the bottoms of atmospheres and thus quantitatively explains the temperature profiles of all planets whatever their atmosphere including the ~ 33c warmer the bottom of our atmosphere is than our radiative balance with the Sun .

The GHG paradigm , excluding the Law of Gravity in violation even of conservation of

energy , being false , has thus never presented a testable equation quantifying their asserted spectral “trapping” nor an experimental demonstration of it .

I wish I had the motivated time to work out or find (it may have been worked out correctly by Loschmidt as long ago as 1876) the complete computation of the product of speed and mass which determines pressure which has been now indisputably shown to explain the overall temperature profiles of all planets , but they clearly are undergraduate level stuff .

Few realize how totally without equation or derivation Hansen et al’s 1981 paper , <https://pubs.giss.nasa.gov/abs/ha04600x.html> , “bait and switch” paper , using the gravitational lapse rate to explain why more CO2 will radiate from higher where it’s colder , then attributing *without equation* the entire temperature profile below to an anti-physical GHG energy trapping .

The field has been conducted like a statistical social science rather than a fundamentals based **quantitative** branch of applied physics ever since .

[Reply](#)

Dan January 29, 2019 at 6:27 pm

And, What about the butterflies?
Modeling is Chaos.....

[Reply](#)

Kurt January 29, 2019 at 6:33 pm

“Before we construct buildings or airplanes, we make physical, small-scale models and test them against stresses and performance that will be required of them when they are actually built. When dealing with systems that are largely (or entirely) beyond our control – such as climate – we try to describe them with mathematical equations. By altering the values of the variables in these equations, we can see how the outcomes are affected. This is called sensitivity testing, the very best use of mathematical models.”

A model has to first be proven to reliably simulate the physical system being modeled, before any confidence can be given in such sensitivity training. In aerodynamics or structural engineering applications, this is possible, and only thereafter can the model be used essentially as a cost-saving device before you invest a substantial sum to erect a building or build a batch of new airplanes. With respect to the climate, however, the initial stage of testing a model to see whether it

is actually useful is not practically possible. It takes too long to observe actual changes in the Earth's climate to validate a model simulation.

[Reply](#)

joe January 29, 2019 at 11:58 pm

Surely they could run two tests:

i) start with 1900 conditions and run your model to today. Compare predicted temperatures to actual temps.

ii) start with year 1000 conditions and run your model to today. Compare predicted temperatures to actual temperatures

Repeat the above with slight variations in the initial conditions.

Publish for world to see.

Give model to others to see if they can reproduce the same results

Publish for world to see.

[Reply](#)

Kurt January 30, 2019 at 12:22 am

How are you going to test your model's ability to correctly determine the amount of warming from CO2 emissions? You can't go back in time hundreds of times to play out different levels of emissions to see whether your model gets that relationship right.

If the hypothesis is that we are changing the climate by emitting greenhouse gasses, in a climate that is capable of changing all on its own without any human influence, and if there is only one climate system that can't be experimented on in a controlled manner, you're never going to be able to scientifically test your model's ability to accurately distinguish between what amount of observed climate change is from greenhouse gasses and what amount would have occurred anyway.

[Reply](#)

joe January 30, 2019 at 3:35 am

You will never know for certain how correct any model is. Or for that

matter what the real error bars are.

If model accurately matches the last 1000 years, you now have a starting point for discussion about what if anything should be done.

You could also try matching the last two million years. If the model can't predict the comings and goings of the various ice ages then the model is wrong.

Does it bother me that the earth is getting warmer? Not one iota. I'm much more interested in when the next ice age is coming. 😊

[Reply](#)

Steve O January 30, 2019 at 5:26 am

I agree 100% with what you wrote. And it has some important implications.

Let's accept as a possibility that mankind may be altering the earth's climate in a detrimental way. How would we know? We will never prove that by observation of real world data. The most we will ever have are models that point to it. Therefore, insisting on real world observational data to prove mankind-induced, detrimental, preventable global warming is unfair. Models are all we will ever have.

But the amount of money I'm willing to spend depends partly on the reliability of those models. Leo Smith's quote that "We are with climate science about where Leonardo da Vinci was with aeroplanes." pretty much sums it up for me.

[Reply](#)

joe January 30, 2019 at 7:41 am

Similarly, how will we really know if cutting CO2 emissions actually stops the earth's temperature rise?

Answer: Climate change is about wealth redistribution so it won't matter.

A solution to the climate change – wealth redistribution issue. Ask everyone in western cultures if they believe in preventing climate change. Do this on their tax return and or benefits claims forms.

Then ban all these people from flying on airplanes or riding in cars. Also apply an extra 10% tax on their income and a 10% tax on their wealth. Be interesting to see how many would pay.

Kurt January 30, 2019 at 7:57 pm

“Therefore, insisting on real world observational data to prove mankind-induced, detrimental, preventable global warming is unfair. Models are all we will ever have. But the amount of money I’m willing to spend depends partly on the reliability of those models.”

Let me flip this around: why is it fair to demand that someone else pay any amount of money at all to ameliorate a hypothesized “mankind-induced, detrimental, preventable global warming” when the only evidence offered that such warming is both detrimental and preventable lies in computer models that admittedly cannot be validated with any degree of certainty.

No one is simply demanding that scientists prove that the models accurately simulate the effect of carbon dioxide. The demand is that no one should be forced (or incentivized through artificially higher prices) to curtail their beneficial use of fossil fuels until such proof is provided.

PaulH January 31, 2019 at 6:40 am

Give model to others to see if they can reproduce the same results

Open-source climate models? I like the idea!

[Reply](#)

Ken Irwin January 30, 2019 at 12:24 am

I was once observing the modal analysis of a vehicle prototype.

Modal analysis is where the physical prototype is subject to vibrational bending and flexing to assess its structural performance against the computer model of

the structure – you can then run all sorts of non-destructive and violent tests against the CAD model – this is used for all sorts of structures – bridges etc.

The engineer running the program made this observation :-

“We do this to validate the performance of the computer model – in reality it invariably invalidates the model and we have to go back and tweek the model to match the results”

And this is where the physics and formulae are known and well established and the computer generated CAD models are theoretically robust.

It is delusional to claim that a computer model can emulate climate which is a largely unknown, non-linear chaotic system with hundreds of variables and covariant problems.

“Its author can be excused of dishonesty only on the grounds that before deceiving others he has taken great pains to deceive himself.” Peter Medawar

[Reply](#)

Shawn Marshall January 30, 2019 at 6:08 am

I am just a dumb retired EE but the whole story of back radiation from CO2 seems bogus to me as a positive feedback. It seems a simple experiment could be designed within a building (to shield light and IR) with earth plots heated to 90 F. Cover one plot with a CO2 cloud (plastic membrane) at some height to allow convection unimpeded and cover the other with an identical air filled membrane. Measure the energy used to maintain the 90 F (grids of elec strips as used in flooring?) and the effect of ‘back radiation should be calculable and measurable. With the billions spent on AGW could not some simple experiments falsify the back radiation premise. I know of the Woods experiments and etc but it seems a present day high profile test is needed.

[Reply](#)

ALLAN MACRAE January 30, 2019 at 6:16 pm

Gentlemen:

Repeating from my post above:

“Christy and McNider (2017) and Lewis and Curry (2018) both made the very conservative assumption (for the sake of argument and simplicity) that ~ALL net global temperature increases are due to increasing atm. CO2, and thus calculated that MAXIMUM UPPER BOUND value of climate sensitivity equals

just over 1C/(2xCO2). These are full-Earth-scale tests, not subject to scale-up and other errors.

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The rational conclusion is that CLIMATE SENSITIVITY TO ATMOSPHERIC CO2 IS SO LOW THAT THERE IS NO REAL CO2-DRIVEN GLOBAL WARMING CRISIS.

Regards, Allan”

I see no need for arguments at the molecular physics scale, when the above are FULL-EARTH-SCALE tests that provide a probably UPPER BOUND for climate sensitivity, with NO scale-up or other errors that abound at the molecular scale. Based on the above two papers, it is highly probable that climate sensitivity to CO2 is no more than about 1C/doubling, and that is too low for catastrophic global warming to occur.

To answer your question about hindcasting (modeling the past) with computer climate models, consider this:

As atmospheric CO2 concentrations strongly increased after ~1940, Earth cooled for about 37 years until the Great Pacific Climate Shift of 1977, then warmed for less than two decades, and then stayed about the same temperature for two decades during “the Pause”, except for some major El Nino’s and la Nina’s.

The climate models all ASSUME that CO2 is the primary control knob (driver) of global temperature, so they CANNOT HONESTLY HINDCAST, because the correlations of global temperature with increasing atmospheric CO2 are actually negative, positive and near-zero – an extremely poor correlation. This is also a full-Earth-scale test that is not subject to scale-up errors, etc. Some computer climate modelers reportedly* forced their models to hindcast by fabricating false aerosol data to simulate the cooling from ~1940-1977.

(* blog correspondence with Dr. Douglas Hoyt).

There is NO evidence that increasing atmospheric CO2 is a significant driver of global warming, unless you also conclude that CO2 also drives global cooling AND “the Pause”.

[Reply](#)

Tom Halla January 29, 2019 at 6:34 pm

The IPCC estimates for ECS have not really advanced much since the 1978 Charney report. I tend to have the impression that they don’t really care about the science, as long as they get funding and junkets to wherever.

Kurt January 29, 2019 at 7:07 pm

I always had the impression that what they care about is the ability to keep publishing peer-reviewed research papers. The number of papers that they author is the only real measure they have of their own competence. Climate scientists don't actually make anything useful. Nor do they have a proven track record of accurate predictions that could demonstrate that they truly do understand the climate system. In fact, they eschew even the possibility of the predictive capacity of models by calling model runs "scenarios" instead of predictions, and insist that it is simply not reasonable to expect any computer model to be able to predict any future climate state.

So when you get down to the essential inquiry of how to measure the expertise of any individual climate scientist, it all comes down to the number of peer-reviewed papers they have authored. That's why the latest dump of e-mails from Michael Mann showed him offering the prospect of being a coauthor for an upcoming paper as an enticement to another academic, to convince him to write a hit-piece editorial on a colleague. That's why they make such an effort to keep those who are skeptical of the harmful influence of CO2 emissions from being able to publish papers in peer reviewed journals. That's why papers whose conclusions rest on unprovable assumptions, sloppy reasoning, etc. nonetheless make it through the peer review process.

Climate scientists use computer models, not because they are actually useful in simulating the climate, but because they have no other recourse – there is no actual scientific way of physically measuring the effect of CO2 in a controlled experiment, or doing a statistical analysis of the effect of CO2 when there is only a single climate system in the population being sampled. When a group of climate "scientists" wanted to publish a peer reviewed paper "studying" the effects of CO2 on oxygen content in the oceans, a computer model was the only tool they had to produce the "data" for the paper showing how oxygen content changed with temperature. The fact that the computer model used proved to be pretty bad at simulating temporal changes in oxygen content was certainly not an impediment to publishing the paper, or even concluding that the computer simulation should be relied upon. Publishing the paper was paramount, and actual accuracy was subservient to that need. This need to publish is what drives the myriad intellectual compromises being made in climate science.

[Reply](#)

Steve O January 30, 2019 at 5:01 am

“In fact, they eschew even the possibility of the predictive capacity of models by calling model runs “scenarios” instead of predictions, and insist that it is simply not reasonable to expect any computer model to be able to predict any future climate state.”

— I don’t see a lot of scientists stepping up against those sounding the alarm and calling for radical and expensive actions based on their work. Perhaps they believe the science justifies the alarm but they themselves don’t want to risk their professional reputations with emphatic statements? Or perhaps the science truly does NOT justify as much alarm as is being heard, but they know if they speak out they will never see another grant and will be professionally destroyed.

Meanwhile, activists are shouting panic from the rooftops and the scientists who made much more moderate statements seem to sit silently.

[Reply](#)

Nick Stokes January 29, 2019 at 6:39 pm

“It is important to properly understand these models, since they are the only basis for the climate scare.”

Well, you won’t find out from reading this article. There is no indication that either Dr Soon or the authors know anything about how GCMs work.

[Reply](#)

Kurt January 29, 2019 at 7:11 pm

What indication is there that any climate scientist knows anything about how the real climate system works?

[Reply](#)

Nick Stokes January 29, 2019 at 7:38 pm

The models are essentially weather forecasting models; some do double duty. And they work pretty well for that. They must be getting something right.

[Reply](#)

Gary January 29, 2019 at 7:49 pm

I see what you did there.

Weather isn't climate.

[Reply](#)

Kurt January 29, 2019 at 8:09 pm

But we're told ad nauseam that weather is not climate. Just because climate models can take a spatial pattern of weather and accurately forecast, for say three to five days, how those weather phenomena move around the globe is not evidence of an understanding of what affects change in the multitude of different climates that exist throughout the world.

The only objective measurement of our understanding of any physical system is the demonstrated use to which we've put that knowledge, and the limits of the uses to which we have put our knowledge of a system similarly define the limits of our understanding of that system. So even accepting that the physical processes that produce our daily weather are the same physical processes that produce our long term climate, the fact that a climate model can accurately forecast weather for a short period is no logical basis to infer that such a climate model accurately predicts the temperature increase from added CO₂, let alone the downstream impacts on weather events like hurricanes, droughts, etc.

[Reply](#)

Paul Blase January 30, 2019 at 4:27 pm

Kurt

"So even accepting that the physical processes that produce our daily weather are the same physical processes that produce our long term climate"

They're not. Weather forecasting uses primarily current temperature, pressure, and humidity over an area grid. The longer

the forecast the finer and larger the grid must be, with an exponential growth of data required with time. The limit to long-term forecasting, about three weeks, is set by the fact that beyond this you need the current conditions for every square inch on Earth, as well as the exact orbital parameters of Jupiter.

Climate, on the other hand, must include – as many here have noted – many more effects, such as particular atmospheric makeup, solar conditions, orbital parameters, the state and makeup of the deep ocean, biological effects, and geology. Not to mention all of the various feedback effects.

Kurt January 30, 2019 at 8:14 pm

Two things:

First, I was simply accepting for the sake of argument that the same physical processes that determine our weather determine our climate, and saying that even on that assumption you cannot conclude that a model's ability to forecast changes in weather makes it credible that its simulated changes in climate are accurate.

Second, my assumption did not relate to any differences between the factors considered in weather models and climate models, respectively. I was referring to how the actual planetary processes work. Since climate is defined as simply the long-term expected statistics of weather, does it not seem to logically follow that the same physical processes that determine the climate system at any given location are the same physical processes that determine its daily weather?

John Pickens January 29, 2019 at 8:10 pm

Eight days appears to be the upper limit on accurate forecasts, in my observation of prediction vs. reality.

[Reply](#)

ATheoK January 29, 2019 at 8:10 pm

“*Nick Stokes January 29, 2019 at 7:38 pm*

The models are essentially weather forecasting models; some do double duty. And they work pretty well for that. They must be getting something right.”

False.

Weather forecast models run by the activist alleged weather agencies fail beyond a few days.

e.g. NOAA’s prediction for a warm winter for the USA during 2018-2019. They couldn’t get it right in early November for January.

http://www.cpc.ncep.noaa.gov/products/archives/long_lead/gifs/2018/201810temp.gif

Reply

Nick Stokes January 29, 2019 at 8:39 pm

“They couldn’t get it right in early November for January.”

Look again at your link. There is no prediction for January. The earliest is for Dec-Jan-Feb. Broadly, the west is predicted warm, the east cool. December was warm. Jan has cold spells in the East. Feb as yet unknown.

Yes, weather forecasts are unreliable beyond a few days. They work well within their period. After that, you still get weather consistent with the climate, but the timing of events goes astray. Climate models don’t predict weather, but they do predict changes in that average climate.

Kurt January 29, 2019 at 9:07 pm

“Climate models don’t predict weather, but they do predict changes in that average climate.”

So which is it? Above, you argued that climate models “are essentially weather forecasting models” that do “double duty.” Now you say that climate models don’t predict weather.

Nick Stokes January 29, 2019 at 10:04 pm

“So which is it?”

Climate. As the days of a forecast roll by, the events get out of sync. The weather that is forecast 30 days hence will not happen as forecast. But it is consistent with the forcings that determine climate, just as the weather was in the forecast period. So the statistics of the weather (climate) remain good, and will continue to be consistent with the forcings as they change.

How do we know> Back-casting. You can set a model to run from 1980, say, with no input of later data. You won't get correct weather. You won't even get El Ninos in the proper sequence, although they should turn up with the right sort of frequency. But the GCM's get the statistics right.

SocietalNorm January 29, 2019 at 10:22 pm

Nick,

You need to understand that tweaking a model to backcast a set of data is an accomplishment of the modeler, not scientific evidence. I can write a completely different simulation program with completely different parameters and get a similar correlation if I'm attempting to backcast something.

Only the accuracy of the model for its intended purpose is important. So far, the models are inaccurate for predicting global temperatures.

By the way, when will the next ice age begin? For extra credit, when will the ice age end?

TimTheToolMan January 29, 2019 at 10:37 pm

Nick writes

“ So the statistics of the weather (climate) remain good, and will continue to be consistent with the forcings as they change.

But that's not what makes a GCM, a GCM. The fundamental difference between a GCM and a weather model is that the GCM is accumulating a tiny amount of energy at each time step. And applying feedbacks to get the "right" amount of energy. And then in the future that accumulated energy impacts the weather.

The GCM is measuring that accumulation of energy, the weather that results is not so hard. But the accumulation of energy is beyond the GCM to resolve.

Consider this Nick, a GCM must accurately model climate to the time step size, say 15 mins. The "change in the climate" is then passed into the next time step and so on. There is nowhere else for the climate change to hide in the model. You can't just wave your arms and say individual time steps don't matter.

So whilst the AGW meme of "can't predict climate in a decade but can in a century" is precisely wrong. They NEED to be able to predict it every 15 minutes.

Disagree? Well then how do you get away from the obvious extension that the climate models are simply a fit on "expected" energy accumulation?

Richard Patton January 29, 2019 at 10:44 pm

Any forecast beyond 3-5 days is pure dung.

LdB January 29, 2019 at 11:35 pm

Nick Back-casting is far easier than forecasting because you are only matching a correlation. For forecasting you require causation or physical understanding about what happens next.

You have noted weather forecasts come with a time validity statement and the same is true of a climate forecast.

So care to tell us the validity time you would like to claim for any climate model?

“The fundamental difference between a GCM and a weather model is that the GCM is accumulating a tiny amount of energy at each time step. And applying feed backs to get the “right” amount of energy.”
No, that’s all wrong. First, they don’t apply feedbacks. Feedback is a global notion, and GCMs solve equations between cells.

And they don’t accumulate energy, either, to any significant extent, except in the ocean. The effect of forcing is through flux balance. In fact, GCMs, like all CFD programs, conserve energy, either by construction, or by correction. But it’s fundamental.

Kurt January 30, 2019 at 12:14 am

“Back-casting. You can set a model to run from 1980, say, with no input of later data. You won’t get correct weather. You won’t even get El Ninos in the proper sequence, although they should turn up with the right sort of frequency. But the GCM’s get the statistics right.”

Climate itself is defined as nothing but an open-ended set of statistics, e.g. an “expectation” or “average” of temperature, precipitation, etc. at a location measured over many decades. A change in climate is therefore a change in those statistics over very large time scales, so saying that GCMs get the “statistics” of climate right over an interval too short to be able to demonstrate the model’s mastery over how that expectation changes over time, in response to a change in an input like CO₂, is meaningless.

All you seem to be saying is that a mathematical model constructed for the purpose of forecasting weather produced in a known and measured climate, run over time intervals during which the climate itself does not change by any significant amount, produces temporal patterns of weather consistent with that essentially constant climate, even though specific daily weather events can’t be predicted reliably for more than a few days. But that’s not relevant to this discussion. To use a model to demonstrate an accurate understanding of how a climate system works requires that the model accurately predict changes in the climate, not that it accurately produces weather patterns “consistent with” a particular climate.

Nick writes

“No, that’s all wrong. First, they don’t apply feedbacks. Feedback is a global notion, and GCMs solve equations between cells.”

A pedantic answer doesn’t change the fact. The forcing is the CO₂, the feedback is everything resulting. Many feedbacks are parameterised, not physics based. Control runs don’t result in climate change, they bumble along around an average for ever. By design.

Nick writes

“And they don’t accumulate energy, either, to any significant extent, except in the ocean. The effect of forcing is through flux balance. In fact, GCMs, like all CFD programs, conserve energy, either by construction, or by correction. But it’s fundamental.”

If what you said were true that there wasn’t an appreciable accumulation of energy then TCS is essentially the same as ECS. Is this what you believe? Where does the ongoing warming come from, then?

But at any rate, your statement is wrong. By AGW definition, the earth is accumulating energy due to the TOA radiative imbalance.

Mentioning that the GCMs conserve energy is irrelevant. And by all accounts, they don’t properly anyway. There is a correction of energy at each time step because the models don’t properly account for conservation of energy.

Louis Hooffstetter January 30, 2019 at 12:22 am

“Nick: You need to understand that tweaking a model to backcast a set of data is an accomplishment of the modeler, not scientific evidence.”

Exactly. and it’s called ‘Cheating’!

“If what you said were true that there wasn’t an appreciable accumulation of energy then TCS is essentially the same as ECS. Is this what you believe? Where does the ongoing warming come from, then?”

But at any rate, your statement is wrong. By AGW definition, the earth is accumulating energy due to the TOA radiative imbalance.”

I said they don’t accumulate energy, *except in the ocean*. The difference between TCS and ECS is due to that. In fact, there is an Effective Climate Sensitivity, in which ΔT is divided by forcing minus flux into the sea. That correction to TCR brings it close to ECS.

TOA radiative imbalance is near equal to heat flux into the sea. In fact, it was used as a proxy for it before TOA measurements improved.

TimTheToolMan January 30, 2019 at 4:47 am

Nick writes

“ I said they don’t accumulate energy, except in the ocean.

And in the atmosphere, hence the average increasing temperatures. That **is** climate change. Climate change is all about the TOA radiative imbalance and weather models dont need to account for that accurately. GCMs do but cant. Mauritsen even admits the climate modelers set it by tweaking parameters.

Bob boder January 30, 2019 at 12:29 pm

Nick Stokes

“Yes, weather forecasts are unreliable beyond a few days. They work well within their period. After that, you still get weather consistent with the climate, but the timing of events goes astray. Climate models don’t predict weather, but they do predict changes in that average climate.”

Do you mean they predict that it gets colder in the winter and warmer in the summer?

Then you are right they do do predict that, but than again so do my trees out in the yard.

Michael S. Kelly, LS, BSA, Ret. January 31, 2019 at 5:26 am

Nick Stokes wrote: "And [the models] don't accumulate energy, either, to any significant extent, except in the ocean."

I'm almost speechless. The *entire* point of these models is to show that energy accumulating in the atmosphere due to CO2 absorption-induced radiation imbalance (in from the Sun minus out via thermal radiation) will: a) Cause global average temperature rise, and b) Cause all sorts of calamities as a result of that temperature rise.

If the models *don't* accumulate energy, what *are* they doing? What are they testing? How is it related to CO2, which is the alleged source of the radiation imbalance? If there is no relationship, then they are worthless. But I repeat myself.

ATheoK January 31, 2019 at 5:09 pm

"Nick Stokes January 29, 2019 at 8:39 pm

"They couldn't get it right in early November for January."

Look again at your link. There is no prediction for January."

Right on cue.

When Stokes is faced with facts and links he tries to dodge the issue by distracting with specious claims.

And today, January 31, 2019; WUWT has an entire article about NOAA's busted prediction.

Not that Nick bothered to read the various graphics at the link I provided.

Otherwise he would noticed that NOAA's prediction included a graphic for January/February/March.

Next Nick will wriggle and claim that a three month prediction is

not valid for one month.

NOAA blew the winter forecast with their heavy CO₂ broken models.

And, those are the exact models Nick claims are usable for climate predictions.

Rick C PE January 29, 2019 at 9:03 pm

OK. Let's accept that "weather models" have some predictive skill.

That skill seems to rapidly degrade as you go forward in time. 3-5 days, maybe 80% or so accuracy for whether or not it will rain on a particular day and high/low temperatures within +/- 2-3 degrees C. But prediction accuracy rapidly degrades 7-10 days out. And on a month or 3 ahead time scale we get only warmer or cooler and wetter or dryer than normal predictions with confidence levels of maybe 40 -60%.

(As an aside, I have an old fashion brass barometer with a scale that includes "Rain", "Normal", and "Sunny". When used with the little pointer that facilitates easy determination of whether the pressure is rising or falling it works pretty well too.)

And with weather models we're talking very localized predictions with model inputs that accurately know from current measurements — location of current weather systems, pressure, temperature, wind speed and direction, clouds, humidity etc.

So just how much confidence should we have when these weather models are juiced up with a whole lot of additional parameters and assumptions and run out to 10-20-50-100 years in the future? In my view they are less than worthless as some people in positions of power seem to take them seriously and are doing real damage.

[Reply](#)

Johann Wundersamer January 29, 2019 at 9:55 pm

"The models are essentially weather forecasting models;"

There you have it – GCModelling is in no way 'weather forecasting.

Weather forecasts stem from everyday observing the development in

the real world; and they don't claim reliability beyond the next 5 days.

[Reply](#)

Richard Patton January 29, 2019 at 10:43 pm

Yeah, and remember that weather forecasting models are good a week out at the max and even then sometimes just three days out they are wildly in disagreement and the forecasters then say "due to the low confidence in models we went for climatology." This is after only THREE days. I still can't understand how people will use mathematical models we know can't even predict a week down the road with any reliability and say that they predict with 95+% probability what will happen a century from now (or even a year) is beyond me.

[Reply](#)

knr January 29, 2019 at 11:19 pm

Really! So by how much has weather forecasting improved for mid and long term claims over say the last 20 years?

[Reply](#)

Patrick MJD January 30, 2019 at 1:04 am

And roughly 48% of the time they get it wrong. 97% of weather forecasters and climate "scientists (TM)" trust Torgo's Executive Powder!

[Reply](#)

Ben Vorlich January 30, 2019 at 2:36 am

Nick,
The most accurate forecast for tomorrow's weather is thst it will be similar to today's might be a bit wsrmer, might be a bit cooler, might have a bit more rain, might have a bit less.....

You get the idea.

[Reply](#)

AZ1971 January 30, 2019 at 7:32 am

“The models are essentially weather forecasting models

No, they’re not. Weather is not climate, and models cannot predict weather events anyway. No model could predict the North Atlantic 10-year drought in major hurricanes hitting the US mainland, nor did it. They fail to predict polar vortices, droughts, the decline in tornadic activity, and many other things.

When the model is being used to predict *both* more or less of event *n* then it predicts nothing because the prediction cannot be falsified. Your assertion fails on many fronts.

[Reply](#)

al neipris January 30, 2019 at 7:40 am

“The models are essentially weather forecasting models; some do double duty. And they work pretty well for that. They must be getting something right.”

I read Nick Stokes because he’s a brilliant guy who at times makes compelling arguments. But his comment above to rebut what amounts to the skeptics best argument, is as sloppy and flaccid as a wet fart.

I believe that’s quite telling.

poker guy

[Reply](#)

damp January 30, 2019 at 8:18 am

Forgive me if I’m misunderstanding something, but it seems like the Chicken Littles are holding two, mutually exclusive premises at the

same time. On the one hand, climate is just weather writ large (as Mr. Stokes implies above). Lots of little weather forecasts can equal one big climate forecast.

On the other hand, they say, climate is something that can change the weather. (And this is what we should be afraid of.)

Saying that the weather can change the weather is only saying that weather changes; a tautology. No, if we must be afraid of what climate can do to weather, then these two things, climate and weather, must be different from each other.

And if weather is different than climate, then we will never be able to use the thing-that-is-changed (the weather) to make any very specific statements about the thing that causes the changes (the climate).

[Reply](#)

Bryan - oz4caster January 30, 2019 at 9:24 am

Nick, you say:

“The models are essentially weather forecasting models; some do double duty. And they work pretty well for that. They must be getting something right.”

I agree. I have been following weather forecast models since my college days studying meteorology and engineering back in the early and mid 1970's. For a graduate class I actually programmed a very simple one-level (500 mb) baroclinic model using FORTRAN IV (back in the wonderful punch card days). The models have become tremendously more complicated since then and I have not kept up with all the details. However, I recently found that GFS/CFS “climate” output is now available for 1-month and 3-month periods for temperature and precipitation anomalies as well as SST and SSTA out through the next 9 months and can be seen here for instance:

<https://www.tropicaltidbits.com/analysis/models/?model=cfs-mon®ion=global&pkg=T2ma&runtime=2019012918&fh=1>

Interestingly, the CFS is currently forecasting the current very weak El Niño to persist into October.

I have not seen any analyses of how well the CFS performs for the 9 month forecasts, but I would be very surprised if there is much skill. However, I do think this is a big step in the right direction and I hope that future adjustments will provide improved forecasts.

Global weather and climate models must be carefully and critically

evaluated for their performance, preferably against reanalyses of the model initial conditions run for various forecast periods in order to make adjustments to improve the models. But this is where I am not too impressed by the long-range climate models. I just recently saw this comparison of CMIP5 climate models with HadCRUT4.6 by Clive Best, which indicates most of the models are running too high for GMSTA:

<http://clivebest.com/blog/?p=8788>

If only the lower end climate models runs are correct, then there is no climate doom or gloom and at most only modest warming. It looks like GMSTA is following closest to the RCP2.6 stringent CO2 reduction scenario runs even though CO2 is increasing more like the RCP6 scenario and thus there is little evidence that very much of the warming we do see is from the continuing large increases in CO2. I think the climate models are still in a very early stage need a lot of improvement confirmed by validation testing before we can have much confidence in their projections.

[Reply](#)

MarkW January 30, 2019 at 10:07 am

No Nick, weather models and climate models are completely different beasts and there is no comparison between the two.

[Reply](#)

Jim Gorman January 30, 2019 at 2:20 pm

Something right? Tell how many of the models predicted a year ago that we would have a polar vortex deep freeze in January of this year!

If you can't forecast a year ahead, please explain the confidence level we should assume for a 20, 50, or 100 year forecast. Oh, I forgot, projection.

[Reply](#)

D. J. Hawkins January 29, 2019 at 7:17 pm

I'm thinking most of the people running them don't either.

Take the middle 50% of your historical data, construct your model, see if you get the 25% tails at each end. No success? Back to the drawing board, do not pass "GO" do not cripple the global economy using garbage model.

[Reply](#)

Nick Stokes January 29, 2019 at 7:40 pm

"Take the middle 50% of your historical data, construct your model, see if you get the 25% tails at each end"

No, that is nothing like how GCMs work. They are not based on historical surface temperatures.

[Reply](#)

Gary January 29, 2019 at 7:51 pm

The don't have to be *based* on historical data.

They only have to successfully replicate it.

[Reply](#)

SocietalNorm January 29, 2019 at 8:04 pm

If a model is to be useful, it has to be shown to correctly model the truth within a usable error.

Nick, a few questions:

What truth have the climate models been shown to match? How have the models been verified and validated to prove that the match is correct? What error do these models have? How much error is acceptable? Has matching this particular truth been shown to have usefulness in the real world? What are the limits to this usefulness? Over what bands (ie. time, distance) are the models correct and when do they break down?

These questions all need to be answered positively before any model should be used.

I would say that without knowing the answers to these questions are

positive, the climate models are no better than flipping a coin or rolling dice — but both of these have been proven to be useful models for many situations. No climate model can claim that as far as CAGW is concerned.

[Reply](#)

Andrew Burnette January 30, 2019 at 12:11 pm

Having read many comments by Nick Stokes, I am surprised at this one...

["Take the middle 50% of your historical data, construct your model, see if you get the 25% tails at each end"]

No, that is nothing like how GCMs work. They are not based on historical surface temperatures.]

It doesn't matter what the models are based upon. They are constructed using a set of inputs that cover a time period where the outputs (temperature) are well known. Then those models are "validated" by using them to predict outputs (temperature) for other time periods where those outputs are well known. If they don't predict those outputs correctly, the models are incorrect.

That's pretty basic Mr. Stokes. You should know that is what they are talking about here.

[Reply](#)

jtom January 29, 2019 at 7:26 pm

Do you really need to understand anything other than they have zero predictive capability? Perhaps it should have been worded, "It is important to properly understand that these models have no predictive ability, since they are the only basis for the climate scare." They could not replicate the past, they are not accurate in the present, therefore, it's unlikely they are correctly predicting the future.

[Reply](#)

ATheoK January 29, 2019 at 7:52 pm

“Nick Stokes January 29, 2019 at 6:39 pm

...

Well, you won't find out from reading this article. There is no indication that either Dr Soon or the authors know anything about how GCMs work.”

Typical response of alarmists.

A) Pretend there is a false strawman and slime the authors plus slime any associated scientists.

Without cause. Without evidence.

Truly pathetic.

[Reply](#)

Louis Hooffstetter January 30, 2019 at 12:33 am

“There is no indication that either Dr Soon or the authors know anything about how GCMs work.”

I don't know how they work either. But what I do know is that they DON'T work. The temperatures projected/predicted by the GCMs are now more than 2 standard deviations away from the Earth's actual temperatures. This means we can be more than 95% confident the climate model projections/predictions will never come to pass. In other words, the models are falsified. They're crap.

[Reply](#)

Gwan January 30, 2019 at 6:02 pm

Reply to Louis Hooffetter,

I am in complete agreement with you Louis.

The models all run hot so it seems to me the "butchers" read scientists have their thumb on the scale to push it where they believe it should be, going rapidly up.

Nick Stokes always as usual arguing the toss, come back with some validated GCM predictions.

There are none. The Russian model is the closest, and they should all be less than that. As Louis stated GCMs are crap.

[Reply](#)

Nick,

Do I (or anyone) really need to know the details of a climate model's computer code to know it does not work? The output says it does not work.

An example of a sick person and a doctor is instructive.

If I can see someone very sick near death, I can observe they are very sick. I can know that they are not healthy. I can say, "get to a doctor man!"

One does NOT need an MD degree and 8 years of clinic residency to know a sick person when they see it.

Now even the best trained MDs also get diagnoses wrong. So I would never try to give someone a diagnosis seeing they are sick, just go to a qualified doctor. But bad model outputs are like sick people, we all can see them.

The question then is, are climate modellers qualified to diagnosis their own work (given their conflict of self-interest in the outcome of that decision)?

Doubtful. Mr. Upton Sinclair said something about that a century ago.

So do not ever confuse recognizing someone is sick, with correctly getting into their guts to figure out how to fix it, when the incentives are not there to find anything wrong with the patient.

Climate Science is sick, maybe fatally sick. I tend to think **hospice may be the best Rx for climate modelling**. But I am not a climate scientist to make that diagnosis. But someone needs to put it down... like a rabid dog.

[Reply](#)

Nick Stokes January 29, 2019 at 10:08 pm

"Do I (or anyone) really need to know the details of a climate model's computer code to know it does not work?"

Well, the Heartland authors say:

"It is important to properly understand these models"

But they don't convey any understanding, and I doubt that they have any.

[Reply](#)

LdB January 29, 2019 at 11:39 pm

You can't even get basic physics right so you are hardly in a position to express any view on it.

[Reply](#)

Johann Wundersamer January 29, 2019 at 9:45 pm

Nick – maybe only YOU know anything about how YOUR GCMs work.

[Reply](#)

Louis Hooffstetter January 30, 2019 at 12:37 am

“The failure of nature to conform to the General Circulation Models is seen not as refuting the models, but due to errors in reality and mistakes on the part of the researchers.”

Generic IPCC Climate Scientist (Nick Stokes?)

[Reply](#)

Johann Wundersamer January 29, 2019 at 10:07 pm

Each PlayStation console is better programmed to simulate a soccer training or any shooting game.

Your GCMs are just puppets theaters where someone in the background pulls the strings.

Annoying.

[Reply](#)

paul courtney January 30, 2019 at 12:26 pm

Mr. Stokes: They compared GCMs to Magic 8 ball. This indicates Soon and the authors know all they need to know. Have you considered maybe you know too much that ain't so?

Richard Greene January 31, 2019 at 10:11 am

Strokes

The models DON'T WORK.

That's the whole point !

Not that you could ever understand.

The models predict 2.5x to 3x actual warming.

The smarmy leftists like you, are HAPPY with those scary predictions, because to leftists, scary predictions are the goal, not accurate predictions.

I don't know why you waste your time on the minutia of haphazard, infilled, adjusted surface temperature measurements, defending inaccurate measurements / wild guesses, er, I mean "infilling".

Is there anything else you could do with your spare time?

Something to benefit the world?

The dangerous global warming con game is over three decades old, and we're tired of the consistently wrong temperature forecasts from the computer games, and the scary airy tales of coming climate change doom.

The past 20,000 years of global warming has been 100% good news.

But you dismal leftists keep telling us the future global warming will be 100% bad news ... 30 years have passed since the IPCC was formed and there's no bad news ... in fact, the rate of warming significantly slowed after 2003 (satellite temperature data).

Can't you see reality?

You remind me of Ronald Reagan, who told a "welfare queen" anecdote about a woman cheating the the 'welfare system" — told the story again and again over many years — but it was completely false.

That's like you defending the low quality surface temperature data, and pretending that a +1 or +2 degree C. change in the average temperature, over 100 or 200 years, is a catastrophe!

The actual warming since 1950, extrapolated into the future, and blamed 100% on man made CO2, would cause a mere +1 degree C. of global warming in the next 200 years, assuming +2ppm CO2 growth per year.

That's a harmless climate variation, not a coming climate catastrophe.

You ought to be smart enough to know that, but seem lost in the minutia of tenths of a degree C. temperature variations.

What a waste of time !

[Reply](#)

Kym Smart January 29, 2019 at 6:45 pm

Scepticism. RIP

[Reply](#)

commieBob January 29, 2019 at 7:02 pm

Surely you can do better than that.

In Zen there is the idea of the [Koan](#). It is a puzzle that is designed to thwart logical analysis. Understanding the Koan is the result of enlightenment.

Koans, being cryptic, are indistinguishable from BS for the vast majority of people. [link](#)

It's safe to assume that you are full of it. Nobody is going to believe that your cryptic comments are profound. If you want to be useful here you have to produce some kind of [rational argument](#). Otherwise you will be perceived as a troll because you clearly aren't a Zen master.

[Reply](#)

Kym Smart January 29, 2019 at 8:02 pm

Bob, I started to pick apart that piece. But I soon realized it was just another long list of mis-informer talking points straight out the playbook and I wondered do I really need to spend a couple of hours dismantling it and posting it? – not difficult, but time-consuming – but for what result? To watch the pidgeons kick over the chess pieces and claim victory?

Then I thought, no I'll just point out that Lehr has been convicted and jailed for fraud, maybe that will cause one or two to pause and wonder. I could also accuse him of being a mouthpiece of a spohsophisticated, fossil-fuel funded dis-information machine. All of which is quite simple to research and prove...but again; chess, pidgeons.

But then I thought, well, since this place is supposedly populated with sceptics I'll just see if thats true. I'll leave it and see if a single one of them has any quibble, any question, a scintilla of hesitation or doubt about any of the myriad lies, half-truths and strawmen reproduced above...knowing full well that no one would.

But no, I knew it would just be another long list of unquestioned acceptance, diagonal nods and mainly vigourous, unconditional, enthusiastic agreement. Because its preaching to the choir. Hence the koan: Scepticism RIP. Because I don't even feel a pulse.

[Reply](#)

sycomputing January 29, 2019 at 8:49 pm

“Bob, I started to pick apart that piece. But I soon realized . . . “

”... *and I wondered* ... “

”... *Then I thought* ... “

”... *I could also accuse* ... “

“*But then I thought* ... “

”... *knowing full well* ...”

“*But no, I knew it would just be* ...”

“*Hence the koan: Scepticism RIP. Because I don’t even feel a pulse.*”

Seems like a bunch of dead skeptics are living in your head rent-free, wouldn’t you agree?

[Reply](#)

Kym Smart January 29, 2019 at 9:21 pm

“Seems” to be the case.

sycomputing January 30, 2019 at 7:11 am

“*Seems*” to be the case.

At least you recognize it, congratulations, that’s the first step in getting the help you need.

Gary Pearse January 29, 2019 at 8:56 pm

Oh dear, Kim, I’ve noticed a growing testiness among the climate congregation these last few years as RIP is already laid out on the AGW headstone, waiting. The main sector supplying life support with less and less zeal is the throng of social scientists/ philosophers at crumbling academic institutions and IDolog champagne soshulists.

Climate scientists have fallen largely silent (considering their options, perhaps?). The “Big Pause” (and signs it could soon be back), the

“Climate Blues”, Climategate, the “Great Greening of the Planet”, and the bitter freezes that, by now, should have had their edges worn off ... Sheesh how y’all can stand the punishment is a testament to something.

[Reply](#)

LdB January 29, 2019 at 11:49 pm

Plenty on the climate science side have there own fraud issues are you going to hold them to the same standard so we can dismiss all them as well Kym?

[Reply](#)

Kym Smart January 30, 2019 at 12:37 am

Plenty? Jail for fraud? Really? How many? 10? 15?

Thats right, if you’re going to tell a lie, make it a whopper.

LdB January 30, 2019 at 12:57 am

You sure you aren’t Nick Stokes are trying to avoid the question by a classical stokes defense.

We will get to the who in a minute ... Answer the question do we hold climate scientists to the same standard and just axe them if they have any fraud conviction?

At the moment we are stopping at fraud do you want to add in all criminal convictions?

LdB January 30, 2019 at 1:09 am

It’s probably fair to ask how you want to treat borderline cases like

Rich Davis January 30, 2019 at 1:41 am

That somebody was convicted for overbilling a government agency 28 years ago does harm their personal credibility in my mind. But your dishonest ploy is to imply that we need to trust Lehr in any way to evaluate the facts presented, or that his apparent character flaw reflects on any other skeptic or their scientific evidence.

If we were asked to evaluate a claim by Lehr that he was an eyewitness to a crime, then your point would have some relevance.

[Reply](#)

Tom Abbott January 30, 2019 at 7:39 am

“But your dishonest ploy is to imply that we need to trust Lehr in any way to evaluate the facts presented, or that his apparent character flaw reflects on any other skeptic or their scientific evidence.”

Excellent comment, Rich.

The authors of this article aren't saying anything new, the same things have been said by many skeptical scientists. Attacking the messenger doesn't change the facts.

commieBob January 30, 2019 at 4:34 am

“ ... do I really need to spend a couple of hours dismantling it ... ”

You're describing [Brandolini's law](#).

You can do a lot of good here by forcing people to reconsider their positions and either change them or better understand them.

p.s. If you can explain it, it isn't a koan.

[Reply](#)

Poems of Our Climate January 30, 2019 at 3:15 pm

Either way, it's not a koan.

Gary Pearse January 29, 2019 at 8:15 pm

Kym, get smart. Skepticism in smart people never rests in peace or otherwise. Scepticism is one of science's most important tools (up 'til now?). It should be in the toolboxes of your social science, too.

[Reply](#)

chaamjamal January 29, 2019 at 6:51 pm

“Although governments have funded more than one hundred efforts to model the climate for the better part of three decades, with the exception of one Russian model which was fully “tuned” to and accidentally matched observational data, not one accurately “predicted” (hindcasted) the known past. Their average prediction is now a full 1 degree F above what satellites and weather balloons actually measured.”

A comparison of temperatures: direct observations, reconstructions from the instrumental record, and climate models with CMIP5 forcings.

<https://tambonthongchai.com/2018/09/08/climate-change-theory-vs-data/>

<https://tambonthongchai.com/2018/08/31/cmip5forcings/>

[Reply](#)

Phil. January 29, 2019 at 7:06 pm

Before we construct buildings or airplanes, we make physical, small-scale models and test them against stresses and performance that will be required of them when they are actually built.

Small scale models aren't a good way to go, you tend to do wind tunnel tests at as large a scale as possible. Numerical models are a very good way to go (and cheaper than large scale models in huge wind tunnels). A friend of mine received a lifetime award from Boeing for his CFD model's contribution to their wing designs.

Bulletin of the Chinese Academy of Sciences in 2015,

The paper has been downloaded 12 times more often than any other paper in the entire 60-year archive of that distinguished journal.

The first issue of that journal was published in 1995.

[Reply](#)

Loren Wilson January 30, 2019 at 6:47 am

Fortunately for aeronautics, the scaling of a process such as air flow over an object such as a wing has been demonstrated. Therefore, a model wing can be designed that will test the functioning of a real wing. It may not look exactly like the real wing, only smaller – some of the scaling is not linear. However, the scale is understood, and has some good theoretical footing. Obviously, once the small scale model works, you build a full-sized model. CFD is good for design because the physics are known. Per Nick Stokes' comment above – the model doesn't and can't work if the physics aren't known. The physics of weather still contain many variables that we don't have a clue as to the correct value. Hence the tune-ability of these so-called models. The laws of motion do not have any factors that can be tuned.

[Reply](#)

robert_g January 29, 2019 at 7:18 pm

“The [Wall Street] Journal then had a chimpanzee throw five darts at a wall covered with that day's stock market results. A month later, they determined who preformed better at choosing winners: the analysts or the chimpanzee. The chimp usually won.”

Hey, if the Journal has a chimp is smart enough to throw five darts at the target wall, why wouldn't it do better.

[Reply](#)

Kurt January 29, 2019 at 7:25 pm

Make what you want of that experiment. I heard that Krugman was only on loan for a few days from the New York Times, so they couldn't repeat it.

[Reply](#)

Carl January 30, 2019 at 8:22 am

Clever and funny

[Reply](#)

commieBob January 29, 2019 at 7:39 pm

1 – Around the time that the state where I lived was acquiring its first mainframe, and I was still a pup, I had a chat with one of the IBM engineers installing it. He introduced me to the concept of **GIGO**. It's ridiculously simple and obvious and yet very intelligent, educated, people run afoul of it on a regular basis.

2 – The climate is a chaotic system. That means that it can't be predicted by numerical models. Simpler models are actually superior. [link](#)

If I have a one volt battery and a 10k resistor, I will use Ohm's Law to calculate the current. I will not model the position of every electron in the circuit. That's a rough analog to the situation of Monckton's Irreducibly Simple Model vs. GCMs.

[Reply](#)

Gary Ashe January 29, 2019 at 8:04 pm

The GCM model = Government Climate Money for Gravy-train Con Men.

[Reply](#)

Gary Ashe January 29, 2019 at 8:08 pm

The GCM model = Government Climate Money for Gravy-train Con Men & Globally Committed Marxists.

[Reply](#)

Joel O'Bryan January 29, 2019 at 8:13 pm

“But no climate models relied on by the IPCC (or any other model, for that matter) has applied the initial conditions of 1900 and forecast the Dust Bowl of the 1930s – never mind an accurate prediction of the climate in 2000 or 2015.”

Before 2013, I had not a clue how bad the computer modeling of climate was with regards to actual math/engineering scientific norms. Through all of the 1990s' and then the first decade of 2000s, I simply took climate science, and the climate modellers and their models, at their word. It was a Trust between scientists-engineers.

Like so many in academia today, I simply took climate scientists and their high CO2 sensitivity warming scenarios they produced at their word. Just like most scientists without the time to investigate climate claims probably still do today. An epic, bad mistake.

As more science/engineering/mathematically competent academics get into the Climate Models and realize, the junk that is today's climate science climate modelling. Climate modellers today have zero scientific-engineering credibility that I would expect in from engineering, where hard data verification of a model is essential to believing what it outputs. That is not to say they do not have integrity. It is just the system in which today's climate modellers have been raised in. A system which allows for science fiction-level CGI animation to substitute for hard observational reality verification to the model outputs. Because they refuse to do that hard honesty, they are not scientist-engineers IMO.

Today's Climate modelling is truly the Cargo Cult Science that physicist Dr Feynman described over 40 years ago.

Climate modelling has the wrong paradigm. The climate planes will never land. But that apparently won't stop them from building new runways. I suppose because their paychecks depend on ever-new runways.

[Reply](#)

Steven Mosher January 29, 2019 at 8:25 pm

“It is important to properly understand these models, since they are the only basis for the climate scare.”

err No.

in 1896 we knew adding CO₂ would raise the temperature. And we thought, without simulations, that double CO₂ would lead to 5C warming.

Some thought this would be a good thing.

you can toss out every climate model in existence and there will still be evidence enough to raise concerns.

There are a couple dozen other mistakes in the article, but in general, the biggest mistake is thinking you can stop science with puff pieces.

you can't.

however, guys like Nic Lewis who do actual science, have a better shot of influencing policy.

[Reply](#)

Kurt January 29, 2019 at 8:53 pm

But the qualitative knowledge that added CO₂ raises temperatures is of no use, absent a reliable quantification of that increase. And as you say, there is at least some doubt as to whether the increase will be beneficial or detrimental. So I'm not seeing any problem with the original observation that the models are the only basis for the climate "scare." Absent any argument that in some way relies on at least one climate model, what convincing reason has ever been made that the attendant increase in temperatures from burning fossil fuels is even harmful, let alone something that we need to be scared about?

[Reply](#)

Patrick MJD January 29, 2019 at 9:18 pm

In a sealed and controlled lab experiment.

[Reply](#)

Joel O'Bryan January 29, 2019 at 10:02 pm

Steven,

Svante Arrhenius got it badly wrong and then he eventually admitted it. Still he was a great scientist given the knowledge of his day and his attempt to understand nature.

But then came along a really hard physicist named Richard Feynman, a man who understood the Standard Model and QCD theory and experiments. He was a physicist who admitted how incredibly hard it was to know really something, a “one thing” about physics. A constant such as the mass of an electron or the Hubble constant, or ϵ_0 (the permittivity of a vacuum), really hard stuff in physics.

Today’s atmospheric physicists who work on GCM climate models are absolute jokes. A big Laughing stock joke. Why? Because they really do not know anything more than what books and their model outputs tell them. Feynman had a term for them, Cargo Cultists.

And yet today’s super computer-dependent **climate modelers just “wing it”** with rounding errors in their coefficients performing iterative calculations many millions of times in a computer run.

Clearly error propagation machines.

A Butterfly flapping its wings 50-80 years earlier in South America is all climate models are trying to model on the global scale.

Such predictions should not to be confused with any sense of reality
Nothing more. Junk actually.

[Reply](#)

dauidmhoffer January 29, 2019 at 10:55 pm

the biggest mistake is thinking you can stop science with puff pieces.

Who said anything about stopping science? The fact is that public opinion (which in turn results in policy) is heavily influenced by puff pieces shrieking doom and quoting models. Do you have anything to say about those?

[Reply](#)

Toto January 29, 2019 at 11:36 pm

SM: “however, guys like Nic Lewis who do actual science, have a better shot of influencing policy.”

That’s good.

<https://judithcurry.com/?s=Nic+Lewis>

SM: “you can toss out every climate model in existence and there will still be evidence enough to raise concerns.”

Raise concerns, that’s legit. Raise alarms, that’s different. You need better science for that, and models we can trust.

[Reply](#)

Tom Abbott January 30, 2019 at 9:40 am

“you can toss out every climate model in existence and there will still be evidence enough to raise concerns.”

What evidence? You mean speculation don’t you? You must. If you toss out the climate models then all you have left is the speculation about how much CO₂ might raise the atmosphere’s temperature.

Nobody knows exactly how much warmth CO₂ adds to the atmosphere, nor do they know if some negative feedback might not counteract some or all of CO₂’s warming. There is no evidence that CO₂ has added any net warming to the Earth’s atmosphere.

That’s the state of the science.

Where’s this evidence you are talking about that we should be concerned about?

[Reply](#)

Bob boder January 30, 2019 at 12:34 pm

Mosh

“in 1896 we knew adding c02 would raise the temperature. And we thought, without simulations, that double c02 would lead to 5C warming.” “Some thought this would be a good thing.”

Yep and with each passing simulation that number gets smaller now it’s somewhere between 2C and slightly greater than 0C and the “some” were right it is a good thing.

[Reply](#)

Andy January 29, 2019 at 8:48 pm

The climate models predict that earth's temperature will generally rise. The stock market models also predict that the market will generally rise. Subject to short term fluctuations, or untoward events such as a major eruption or a major war perhaps . But otherwise both kinds of models appear to be correct in the general sense

[Reply](#)

Gary Pearse January 29, 2019 at 9:21 pm

Yes Andy. Both stock markets and the climate constructions are pushed forward by self interested participants. The main differences are, stock markets don't adjust the data to the model. They just record actual outcomes and are a measure of the ingenuity and industry of free persons.

Investors arent so foolish as to lay all their assets into some return a hundred years hence. Well I suppose climateers do because they are making money and using other people's cash with their endeavour.

Human ingenuity is a resource we can count on (even our so-called helpless great grandchildren will have all the ingenuity they need to look after themselves). One flaw in your twinning the two is climate can go any way and has as a general rule. Temperatures always rising is not a characteristic. Jimmy the Greek eventually will be putting odds on this future.

[Reply](#)

Andy January 29, 2019 at 10:09 pm

The article twinned the two types of models, not me, and it says that both models are incorrect. I point out that both models predict an overall rise and are therefore correct in that general sense. So the article is incorrect

[Reply](#)

Andy January 29, 2019 at 10:46 pm

The article twinned the two models, not me, and it suggests they are both incorrect. But they aren't incorrect. Both models are so far correct, in general terms, because overall, both the earth's temperature and the stock market are rising

[Reply](#)

LdB January 29, 2019 at 11:46 pm

The problem is the stock market can also collapse all you need to do is wipe out several billion people off the planet surface and I guarantee you it collapses. The gradual increase in stock market price is largely built on an increasing world population, increasing technology and increasing productivity. That is it has a physical underpinning which must remain true for the prediction to work 😊

[Reply](#)

Johann Wundersamer January 29, 2019 at 9:19 pm

That's the point:

“Soon concludes that, even if the equations to describe these interactive systems were known and properly included in computer models (they are not), it would still not be possible to compute future climate states in any meaningful way.”

Even if the whole planet was the supercomputer it would not give a reliable prognostic of every days 'climate' of the next 30 years.

[Reply](#)

Percy Jackson January 29, 2019 at 9:19 pm

So what is the alternative? The authors I not do not dispute the existence of the greenhouse effect nor would they dispute that humans are increasing global CO2 levels and thus causing the average temperature to rise. Nor would they dispute the fact that a certain temperature rise would be disasterous for our current civilisation in terms of disruptions due to sea level rises, disruptions to monsoons, increased droughts etc. So the question is then do we ignore the best scientific advice because it is not perfect and continue on the road to potential ruin or take steps to avert a possible disaster? The authors seem to be advocating deliberately putting on a blindfold by

refusing to listen to advice and then wandering near a cliff edge

[Reply](#)

Gary Pearse January 29, 2019 at 9:45 pm

Too simple and linear Percy. Look up a little known scientific Principle, the Le Chatelier Principle. In climate, heating from any cause results in phenomena to resist the change, ie, in the tropics where most of the sun's energy is concentrated, evaporation from the sea mainly cools the surface, and rapid convection moves hot moist air aloft to altitudes where latent heat from this phase change (thunder cloud 'chimneys') bypasses the lower atmosphere and radiates to space. Clouds form in early afternoon, reflecting afternoon sunshine back up.

Dozens of phenomena compromise the rigueur of the laboratory where one can control these factors. The effect of CO2 "ceteris parabus" is to warm the atmosphere, but in nature "all other factors held constant" is not an option.

Did you know a hurricane is a heat engine that sucks its energy from a warm sea surface and rapidly vacuums it up to near the top of the atmosphere ... do a little research that we are all competent to do. Just read several climategate emails as a starter.

[Reply](#)

SocietalNorm January 29, 2019 at 10:01 pm

The much better rational alternative is to increase our knowledge of the subject. We must:

UNDERSTAND that a computer model is not scientific evidence.
(I made a career of creating and improving computer simulations of complex systems for NASA and other government agencies – I can match any result I want to achieve. The hardest thing to train young engineers to do is getting them to really dig to understand when computer simulation results are wrong.)

STUDY what is happening in the real world. Create theories, then experiments with hypotheses, get actual results, check the hypotheses, then REVISE or THROW AWAY theories that do not match reality.
Just because this is very difficult with such a complex system does not mean that useful experiments can't be done.

THINK RATIONALLY about the potential problem and look at alternatives for

solving it or other things that may come up (ie. global cooling). What are the costs and benefits of each action?

What steps are reasonable to take if there is a potential for all the great benefits the world has seen over the past century from the increase in warmth do start to turn negative a few decades from now.

Is it really worth it to guarantee a huge increase in world-wide poverty by significantly reducing the user of fossil fuels in the next 50 years – the reversal of the last few decades of lifting billions of people out of poverty. What benefits may come of this reduction in the use of fossil fuels and the slowing down by hours or, at the most, days of the projected warming of the earth by the computer models?

Does anything need to be done at all, or will a warming over the next hundred years be gradually accounted for by the citizens of the earth by doing things like walking to higher ground, planting different crops, planting in newly available areas, and building dikes around low areas. Why wouldn't we believe these actions actually increase the happiness, health, and wealth of the people on the planet.

WE SHOULD NOT jump to actions that we know will be disastrous for millions to billions of people on the earth in the name of "Doing Something."

[Reply](#)

Louis Hooffstetter January 30, 2019 at 1:01 am

"I will clarify what the debate over climate change is really about:
It's not about whether the climate is changing, because it always is.
It's not about whether CO2 is increasing, because it clearly is.
It's not about whether the increase in CO2 will lead to some warming, because it clearly should.

The debate is over how much warming the increase in CO2 will lead to, and how much environmental impact it will lead to.

And the evidence shows the increase in CO2 will lead to very little warming, and the resulting environmental impact will also be minimal. The arguments supporting catastrophic claims are extremely weak, and overtly dishonest."

Paraphrased from Richard Lindzen, Atmospheric Physicist, MIT Professor Emeritus

[Reply](#)

icisil January 30, 2019 at 6:24 am

"So the question is then do we ignore the best scientific advice because it is not

perfect and continue on the road to potential ruin or take steps to avert a possible disaster?”

What would have been the effect if you had ignored the best scientific advice that said saturated fats cause heart disease and continued using butter instead of switching to margarine (hydrogenated fat)? According to later best scientific advice, that saturated fats are good and hydrogenated fats cause heart disease, you would have done better for your health. Do the same math with eggs. The rational conclusion is to not trust what scientists say. I know that sounds blasphemous and contradictory, but it is what it is. Make your own informed decisions and go from there.

[Reply](#)

John Q Public January 29, 2019 at 9:19 pm

“in 1896 we knew adding c02 would raise the temperature. And we thought, without simulations, that double c02 would lead to 5C warming.” Stephen Mosher

This is the green house hypothesis, via Rayleigh. Correct me if I am wrong, but has it not been determined that greenhouses operate through convective shielding and have nothing to do with CO2?

Interesting choice of analogy.

[Reply](#)

Johann Wundersamer January 29, 2019 at 9:28 pm

“So we could compute the climate (or Earth’s multiple sub-climates) for 40 years from now, but it would take more than 40 years for the models to make that computation.”

And too we had to ‘correct’ everyday nee yesterday’s computations and findings other the models run wild.

[Reply](#)

Kym Smart January 29, 2019 at 9:35 pm

You’ve noticed testiness? and silence? over the internet? What? with a tinfoil hat

plugged into a USB port?

“crumbling academic institutions”? Like every science organisation on the planet, even, get this, yes even in plutocracies that have a power fossil-fuel lobby.

I fervently hope your opinions can sustain you.

[Reply](#)

Gary Pearse January 29, 2019 at 9:57 pm

I've actually studied climate science, Kym. I'm a geologist and an engineer, 3 separate degrees, so I can go beyond the talking points and am certainly much more qualified than the non scientific devotees I referred to who make most of the noise. Your telling mistake is thinking science is a matter of opinion! Opinion is weightless, contrary to post normal thinking.

[Reply](#)

Kym Smart January 29, 2019 at 10:26 pm

I only referred to opinion because that is what you were expressing in response to mine.

According to your research Gary what is the ECS?

[Reply](#)

Louis Hooffstetter January 30, 2019 at 1:10 am

Take your pick:

<http://notrickszone.com/2017/10/16/recent-co2-climate-sensitivity-estimates-continue-trending-towards-zero/>

The equilibrium climate sensitivity (ECS) is just a scientific wild-ass guess (SWAG).

What's your (scientific wild-ass) guess Kym?

[Reply](#)

Kym Smart January 30, 2019 at 3:53 am

I know Heartland's favourite Scafatta is popular around here, but it's 5 years old. This research, Knutti et al (2017) and updated <https://www.nature.com/articles/ngeo3017> shows the best estimate is still about 3C.

Louis Hooffstetter January 30, 2019 at 6:29 am

If you refer to my link above, you'll see that in 2002, Knutti et al. estimated the equilibrium climate sensitivity (ECS – the response of the climate to a doubling of CO₂) was 5 degrees C, while Gregory estimated it was as high as 6C. Now (2017) Knutti et al. have revised their estimate downward to 3 degrees C, and other researchers have revised their estimates downward to less than 1.5C. But the point is that they are all revising their estimates dramatically downward. And the reason is that they now realize that doubling the amount of CO₂ in the atmosphere will have a trivial effect. And the lack of recent warming (the pause) with only minor warming thereafter is proving that point.

Like I said, the ECS is just a SWAG.

icisil January 30, 2019 at 7:04 am

With talking-points voices like yours the conversation swerves from science into a pissing contest between (take your pick) heartland/oil lobby/plutocracy/capitalism/whatever and the academonati (get it? a portmanteau of academia + demonic + illuminati. trifecta!). There, I called your tin foil hat canard bluff and raised you.

SAMURAI January 29, 2019 at 10:33 pm

Perhaps the biggest failures of the 105 CMIP5 climate model projections are:

- 1) The disconfirmed hypothesis of a mysterious runaway warming feedback loop caused by increased water vapor forcing wrongly assumed to exist in all climate models—making CO2 forcing 3~4 times larger than it actually is....
- 2) Underestimating the warming/cooling effects of Grand Solar Minimum/Grand Solar Maximum events. (CMIP5 Models only account for TSI variance (which doesn't vary much) and does not account for the possible Svensmark Effect)
- 3) The admitted inability of climate models to predict cloud-cover flux.
- 4) Failure to account for warming/cooling effects of PDO/AMO/NAO 30-year ocean warm/cool cycles.
- 5) Failure to properly account for natural Little Ice Age warming recovery since 1850.
- 6) Inability to factor out anomalous Super El Nino global temperature spikes, which naturally occur every 10~15 years or so.

The above huge model errors will especially be manifested when: 1) the PDO/AMO/NAO ocean cycles are all in (or near) their respective 30-year cool cycles in a few years, 2) A 50-year Grand Solar Minimum starts next year, 3) A very likely strong La Nina event from 2020~21.

By the end of 2021, UAH 6.0 will likely be around -0.2C ~ -0.3C , whereas CMIP5 model mean projections will be at 1.2C for 2021....

The above cooling events will also likely cause a noticeable increases in Arctic Ice Extent trends and Greenland Land Ice Mass gains, which CAGW advocates will find impossible to explain away, and a 25+ year global temp hiatus will likely reappear (starting from mid-1996) within the next 5 years.

CAGW is soooo close to being disconfirmed.

[Reply](#)

J Brown January 29, 2019 at 10:45 pm

The behavior of chaotic non-linear systems such as the climate cannot be predicted by numerical models. The conversion of mathematical models of the chaotic non-linear climate system to numerical models requires the use of linearizing assumptions to make the resulting numerical models solvable. As such the resulting numerical models are not a true representation of the climate system I.e. they are wrong right off the bat. These incorrect numerical models can only be used for prediction if they are validated by matching known historical data. "All numerical models are wrong, some are more wrong than others".

[Reply](#)

Phil. January 30, 2019 at 10:01 am

The behavior of chaotic non-linear systems such as the climate cannot be predicted by numerical models.

Actually they can, depends on the nature of the stationary points.

[Reply](#)

zemlik January 29, 2019 at 11:22 pm

Someone on here a while ago was saying that these models are linear. They calculate the effect of a variable on something then calculate the effect of that on something else and so on, whereas in reality everything happens all at once and feeds back to everything else.
Is this correct ?

[Reply](#)

davidmhoffer January 29, 2019 at 11:52 pm

The best take down of the climate models that I recall was by richardscourtney, a onetime regular here. His argument was simple.

The models don't agree with one another. There is only one earth, and so a maximum of only one model can be correct, and more likely than not none are correct. Since any model that is incorrect will increasingly diverge from reality the longer into the future it is run, it is absurd to average over a hundred models together knowing that you are averaging results that are by definition, wrong with the possible (but unlikely) exception of one. Basing policy, or for that matter writing media puff pieces for the public quoting models known to be wrong is not just absurd, it is irresponsible.

[Reply](#)

Louis Hooffstetter January 30, 2019 at 1:13 am

I like the take down of another regular here, RAH. I can't recall the exact quote

so I'll paraphrase from memory:

“Climate model projections are fantasies that climatologists wish were happening in the real world. They're not reality, they're climate porn.”

[Reply](#)

Micky H Corbett January 30, 2019 at 1:17 am

One suggestion to break the link between pure hypothetical musings and application to the real world is to provide an incentive to understand the limitations of the source data.

So any climate scientist who advocates action based on their models should also be happy applying the same verification level to other aspects in their life that have similar criticality.

In other words, drink from a batch of water deemed safe under similar standards. Eat from food deemed safe by similar standards.

I for one verify software for safety critical applications as one strand of my work. The methods in this are equally applicable to water and food safety. I would be happy to eat food and drink water prepared under those standards.

[Reply](#)

knr January 30, 2019 at 3:31 am

Models are required because the data or the ability to collect data is missing. There a second-hand car that is only bought because you cannot afford a new one.

The great 'advantage' they give. is that unlikely reality you can get any result you 'need' through playing around with the inputs.

Hence the first rule of climate science, 'when reality and models differ in value, it is always reality which is in error'.

[Reply](#)

Ben Vorlich January 30, 2019 at 3:44 am

Surely the reason why weather forecasting is better now is due solely to satellites?

Experience of what usually happens for a few days after a particular situation means anyone with that knowledge can make a fairly decent forecast. For the UK a modern version of “Red sky at night” would be “depression over western Atlantic, rain in three days”. Who needs a computer?

[Reply](#)

Michael in Dublin January 30, 2019 at 4:34 am

Alarmists produce models that look like the Picasso painting “Guernica” portraying the tragic 1937 bombing in Spain, rather than the Constable painting “The Hay Wain” on an 1821 English rural scene.

Consider how much we can learn about both situations. While Picasso’s painting should elicit a deep emotional response it actually tells us little about the actual bombing of the town by German planes. However, Constable’s painting gives us a clear picture of real rural English life at a particular point in time. This may be a useful analogy to contrast a climate model with a real observation.

[Reply](#)

Donald Boughton January 30, 2019 at 4:36 am

All climate models should be subject to third party validation using hind casting. The results should be compared with the historical record. Half of research groups whose model results most closely resembled the historical record should keep their funding while remaining research groups should all lose their funding.

All the research groups should be given 18 months to two years warning about the impending third party validation. This validation process will provide evolutionary pressure on the research groups to improve their models by removing unwarranted assumptions and improve the wild guesses on the values of climate variables

[Reply](#)

Steve O January 30, 2019 at 4:49 am

I don’t see anything inherently wrong with relying on models, just because they’re models. After all, any model is designed to be a reflection of reality. Granted, an unreliable model has limited utility.

Actions need to be justified, and justification is impaired by the reliability of the

models. The question is, what actions are justified based on what we know.

- More funds for climate research? Sure.
- Funding to reduce the costs of nuclear power, in case we need to convert? Why not.
- Limiting global emissions and reordering the world's economy? You're kidding right.

Even if the models were trustworthy, and pointed to CO2 emissions causing catastrophic warming, there are proposals being implemented that make no sense. Converting to wind and solar power? Wealth transfers? Sheesh. I'm supposed to think that the cabal is smart enough to model the earth's climate, but not smart enough to see that wind power is stupid?

ANY actions need to be justified. Expected benefits must exceed expected costs. After you convince me that mankind's CO2 emissions are causing catastrophic warming, you still have to convince me that we should take action. I would consider spending six trillion dollars in order to delay the warming by six years to be a futile gesture, with the money being better spent on adjusting ourselves to live in a warmer world.

The "do nothing" scenario is the foundational scenario. In the field of decision-making under uncertainty this is kindergarten level stuff. Yet that scenario is more than simply ignored. The very acknowledgment of its existence is met with boiling oil, fire, and arrows. I'm supposed to believe that these geniuses can model the earth's climate but are unable to formulate a simple decision tree?

[Reply](#)

Steve O January 30, 2019 at 5:06 am

Just to be clear, I don't mean to imply that the people creating climate models are not geniuses. I trust that most of them are. But where is my decision tree?!

[Reply](#)

Juan Slayton January 30, 2019 at 5:26 am

If one enters the correct data for a 1920 Model A, automotive modeling software used to develop a 2020 Ferrari should predict the performance of a 1920 Model A with reasonable accuracy. And it will.

Automotive modeling software must be remarkable:

The Ford Model A was the second successful vehicle model for the Ford Motor Company, after its predecessor, the Model T. First produced on October 20, 1927....

Yeah, I know it's Wikipedia, but the dates of Model A production are not, so far as I know, in dispute.

:>)

[Reply](#)

Coach Springer January 30, 2019 at 7:16 am

The problem with debunking models is there will always be a new one that appears to debunk your debunking.

[Reply](#)

Bob Hoye January 30, 2019 at 7:18 am

I was going to nitpick the 1920 Model A and Juan beat me to it.
The car produced in 1920 was a Model T.
My first car was a 1930 Model A Ford Coupe.
Bought in 1955 for \$40.
However, the analogy of using cars is worthwhile.

[Reply](#)

Ken Irwin January 30, 2019 at 8:16 am

I'd like to see a model that predicts the ride and handling characteristics.

Too complex.

Horsepower is easy – well defined via thermodynamics etc.

Inappropriate analogy.

Some models work well others not so much – climate modelling is simply guesswork dressed up as science.

[Reply](#)

SLC Dave January 30, 2019 at 8:49 am

The national weather service has probably saved millions of lives with their “silly models,” but the next time a cat 5 hurricane is barreling towards the gulf coast you should probably just put on sunscreen cause you know it’s just a bunch of baloney

[Reply](#)

Superchunk January 30, 2019 at 9:35 am

I would bet it’s the plane and space-based tracking that is saving lives. In fact, the false-alarm mentality created by models could arguably cost lives since it seem like wherever the long-range models say a hurricane will go is where it’s likely not to go, except on the very rare occasions when it does.

[Reply](#)

Phil. January 30, 2019 at 10:18 am

Here’s a discussion of the model predictions for the landfall of hurricane Sandy:

“The results show that ECMWF operational forecasts 8 days before landfall gave a strong and accurate indication of what was to happen. From 7 days before the landfall the high-resolution forecasts were consistent in its prediction of the landfall. The results from the ensemble forecasts allowed a significant degree of confidence to be attached to these forecasts but also showed signs of a too slow movement of the cyclone, which led to a timing error of the landfall.”

Sandy is a good test since it made an unusual turn to the west prior to landfall which was predicted by the model.

<https://www.ecmwf.int/sites/default/files/elibrary/2013/10913-evaluation-forecasts-hurricane-sandy.pdf>

[Reply](#)

Kurt January 30, 2019 at 8:28 pm

Google the phrase “straw man fallacy.” You might find it informative.

[Reply](#)

Superchunk January 30, 2019 at 9:21 am

I'm curious when, and based on what conditions, the models say the next glaciation should begin, or when and why the ice age we're currently in (if my understanding is correct) will end. And what triggered the MWP and the LIA. Without this, I can create a model that just rises at .5C per century that matches official models.

[Reply](#)

Robert of Texas January 30, 2019 at 11:32 am

You can divide computer models up into a few categories to determine which ones are theoretically possible of making a prediction over a given amount of time:

1) Bound and Unbound – a bound model will not exceed certain limits and will act against any movement to an edge with increasing adjustments, so these have some medium range that is practical. The Earth would fit into this category as it has never become like Venus. An unbound model can scurry off any direction (degree of freedom) from some non-linear interaction the programmer didn't predict. These are common early bugs in many models requiring bounds be added, and these bounds are often just guesses, not limits that are discovered through studying the natural process.

2) Well Behaved or Chaotic: Well behaved models transition from state to state in well defined ways and are easy (or at least easier) to understand. Chaotic models can transition suddenly with no warning from very little changes in the inputs. The Earth's climate is likely chaotic. Chaotic models are extremely difficult to get right when there multiple variables to tune – tuning one can detune the others. Using an evolutionary learning process is about the only way to attempt to tune a chaotic model with many variables, and even then the answer may be only one possible correct answer from many possible ones.

3) Independent or Iterative: An independent model is given a set of initial input and it calculates some final state and then stops. An Iterative model starts with a set of initial input and then uses the result state as the initial input into another run producing another resultant state, and so on. Iterative models often suffer from divergence – that is any error in a previous state amplifies in a successive state, becoming more and more noise in the processing until all accuracy is lost. Iterative chaotic models that lack initial accuracy – that is if any of the inputs are guesses – will suffer a complete failure of accuracy of the results after enough iterations. Even if the model is bounded, it likely will just hit and stay at an edge.

If a system is Chaotic and Iterative, then it will be nearly impossible to predict over a

sufficient time. The amount of time depends on the complexity of the system, and the magnitude of a state change when it goes through a chaotic shift. Climate fits into this class of problems – it is very complex and appears chaotic (i.e. goes through swift sudden changes).

A reasonable climate model is likely to be Bound, Chaotic, and Iterative. I say Bound because the Earth seems to stay within a narrow range of temperatures over time, Chaotic because most natural systems are to some degree chaotic, and Iterative because it is obvious that the weather today affects the weather of tomorrow, and climate is after all just a 30-year (or 100, or some amount of time) averaging of weather.

A favorite method for programmers of such models to keep failures from occurring is to add artificial boundaries and tests that look for behaviors that will result in an edge failure. These tests can herd a model's behavior back towards an more expected result, and so the model appears to complete its run giving realistic results. The problem is of course, the results are complete B.S.

But if you are predicting far enough out – say 50 years, then no one can call you out on it for at least 20 to 30 years. By then you either update your model to make the past 20 to 30 years look more reasonable, or you change the recorded historical data to better match your results, or you replace real measurements with model produced measurements so that reality no longer matters. Our Climate Scientists are trying all three. The correct scientific response would be to rebuild the model to better simulate what has been learned, but if you already know the answer, you cannot ever learn... This seems to be the root of the main problem.

Now to say the people programming these models lied is not accurate – they truly believe the results before them – it's like their mind conveniently forgets all the contrivance put inside the model. The people adding the contrivance are often working for the scientist who is trying to model the behavior, so the scientist may not even understand how bad the model is, and the programmers are just trying to make the code work. I have myself been fooled by a model I wrote, only to discover later it wasn't predicting real world results as much as just reflecting my own beliefs – it's a very easy trap to fall into.

This is NOT a problem with models, or the idea of modeling. Models work very well in many applications. It is a problem with the application of models to such a complex natural system where testing is impossible unless you are patient and test over 100 years or so.

The real problem is a human one...people have jumped to a conclusion that “CO2 controls temperature” when it has become clearly evident that it at best “influences temperature somewhat”. As long as the scientists producing these models already know the answer, their models will produce nothing but biased results.

[Reply](#)

“Iterative because it is obvious that the weather today affects the weather of tomorrow, and climate is after all just a 30-year (or 100, or some amount of time) averaging of weather.”

I’m not sure that’s right. Today’s weather is certainly correlated with tomorrow’s weather, but I don’t think you can assume a causal relationship where one “affects” the other. Instead, I’d very broadly visualize the climate system as being some set of physical phenomena (ocean currents, sun shining on a spinning earth, clouds, mountains, etc) that produces a sequence of chaotic short term weather events but that collectively exhibits generally predictable long term statistical behavior, such as seasonal cycles of temperature values, annual rainfall amounts within typical bounds, etc.

But a weather event in the real world, like say a hurricane, is something that can last for several weeks and move over many locations. A rainstorm over Seattle may last 48 hours, but depending on its timing it could cover anywhere between two to three calendar days. It then moves over the mountains and produces blizzard conditions there for a day or so, and so forth.

This doesn’t seem to be iterative behavior – it only seems so because we impose an arbitrary 24-hour boundary around what we call “weather.” But we do that only because we organize our human lives around a 24-hour calendar. Weather events don’t really care about when the calendar turns over to a new day.

[Reply](#)

RayG January 30, 2019 at 12:47 pm

There exists a very extensive body of work on verification and validation (V and V) of simulation models in the peer reviewed archival literature. There is an accompanying body of work where others have replicated this work. This body of work dates back to the 1960s and continues to the present. Mr. Stokes, please identify any of the GCMs that have been subjected to a proper V and V testing and, if that has occurred, the results made public.

As an aside, the notion that “peer review” is some kind of gold standard is misguided at best. The gold standard is replication!

[Reply](#)

Alan Ranger January 30, 2019 at 3:15 pm

Without even debating any of the assumptions underlying these models (CMIP5 etc.) it's well worth watching Pat Frank's damning expose, showing the abject worthlessness of whole computer climate modelling exercise:

<https://www.youtube.com/watch?v=THg6vGGRpvA>

Alan

[Reply](#)

Toto January 30, 2019 at 6:58 pm

“GEOS is a global atmospheric model that uses mathematical equations run through a supercomputer to represent physical processes.” That’s from a new WUWT posting. That’s a good description of all climate models. First there is reality, then there is the known science of those physical processes, then there is the mathematical description of those, then there is the computational description of that, then there is the interpretation of the results, usually of the ensemble of results. Many steps, and at each step along the way there is a chance that something is left out or something is not as accurate as it should be. If this were proper science, everybody would be jumping to find problems and fix them. That happens with weather models, and weather models are getting better, and everybody acknowledges that they have their limits.

Climate models are similar in some ways but used in very different ways. Weather and climate are different things, weather being what you get and climate being the range you could get. That’s not the problem. With weather, we only need to predict the things that change in a few days. CO2 and other greenhouse gasses (other than water) don’t matter. The problem with climate is that there are so many things that could matter that we know of and probably more things that matter that we don’t, and our knowledge of things that do matter is very incomplete.

So when the climate models predict more incoming radiation than outgoing, it’s going to get warmer. The science is settled, basic physics. Case closed. Except it isn’t, because the climate models aren’t very good at clouds and other things that affect those incoming and outgoing values. The science is not settled, because the science is hard, wicked hard.

It’s even harder when in the rush to find the Holy Grail everybody rushes down the wrong path.

Except Willis and a few others who see emergent phenomena and self-regulating systems. It’s ironic that Willis’s earth is more Gaia like and the mainstream view of earth is like a crude, dumb machine.

There are more things in heaven and earth, Horatio,
Than are dreamt of in your philosophy.

– Hamlet (1.5.167-8), Hamlet to Horatio

[Reply](#)

Michael January 31, 2019 at 2:27 am

A common error is that CO₂ itself raising the temperature. It does not. All it does is accepts the bundles of energy from the Sun, the photons, and re-radiates them at a different frequency which is absorbed by the other gases of the atmosphere.

Its the a retention by the other gases of this energy which raises the temperature.

But at night this situation reverses. The CO₂ now accepts the heat energy y from the warmth which is the atmosphere and again it changes the frequency e back to the Infra Red. Part of that ends up going to outer Space. That is why in very dry places at night, deserts, it gets very cold. So poor CO₂, blamed by the Greens for overheating the Planet, actually cools things down.

MJE

[Reply](#)

Joe Born January 31, 2019 at 4:49 am

“At a vital point in their calculations, climatologists had neglected to take account of the fact that the Sun is shining!”

This silly notion is the message in Christopher Monckton’s mathematically incoherent video at <https://www.youtube.com/watch?v=kcxcZ8LEm2A>

If you dig into that video’s math, you find that the “term for sunshine” he goes on about actually has no effect in his actual calculations, that his math all boils down to the six numbers in his “end of the global warming scam in a single slide” at <https://wattsupwiththat.com/2018/08/15/climatologys-startling-error-of-physics-answers-to-comments/> –which implements the simple and erroneous notion that extrapolation of with-feedback temperature as a function of without feedback temperature should be based on average slope rather than local slope.

If the Heartland Institute’s science director really believes that extrapolation should be based on average slope, he’s likely to accept a lot of other mathematically incoherent things, too.

[Reply](#)

Usurbrain January 31, 2019 at 9:11 am

It just amazes me that as a person involved with developing the computer models for accident analysis and straining simulators for nuclear power plants that it took over two years just to get a rough model of a nuclear power plant to start verifying it worked correctly AND we had every known parameter and the affects of this parameter on the process. From that point it took more than another two years to get the training simulator to duplicate the actual plant within 0.1% accuracy. Further we knew every parameter, no guesses, no fudging, no estimates, and no “tricks.” Same is true for flight simulators and other process plant simulators (e.g. gasoline refining plants.)

NONE of this has been done with computer models. And as the article states the world does not have a computer capable to do this. All the climate models are like the simple program I wrote in Basic for CPM about 50 years ago to model a Nuclear power plat as a sort of game. hardly an accurate simulator.

[Reply](#)

RayG January 31, 2019 at 12:21 pm

Usur, please comment on the V&V that was involved in developing your models. Thanks

[Reply](#)

Usurbrain February 1, 2019 at 8:39 am

Was placed on this project as I was the Instrumentation Engineer on several NPPs. I was responsible for developing the algorithms and function curves for controlling the Reactor and feed-water system. Also responsible for aligning and tuning the reactor and feed-water control system during the power escalation system. These calculations were used to make the initial model, and to get a Beta model. Once we got the model to roughly proximate the actual plant (and the Beta was fairly close, just not within specs) we then use the computer data from the actual plant of actual power excursions, typical events like loss of a pump, or loss of power, and normal operating events, like increasing power, decreasing load, and each and every other normal operating procedures. Since this was in essence a closed system, every time we tweaked one function curve to match the plant, other function curves needed to be changed. Reminded me of doing the convergence on a color TV CRT, not LCD.

Therein is the problem of the Climate models – none of this has been done. They do it for models of airplanes, cars, “Cracking’ plants – like oil refineries, etc. but not for Climate Change. Thus it is just like that simple model I wrote for my son years ago so he could pretend he was operation a NPP.

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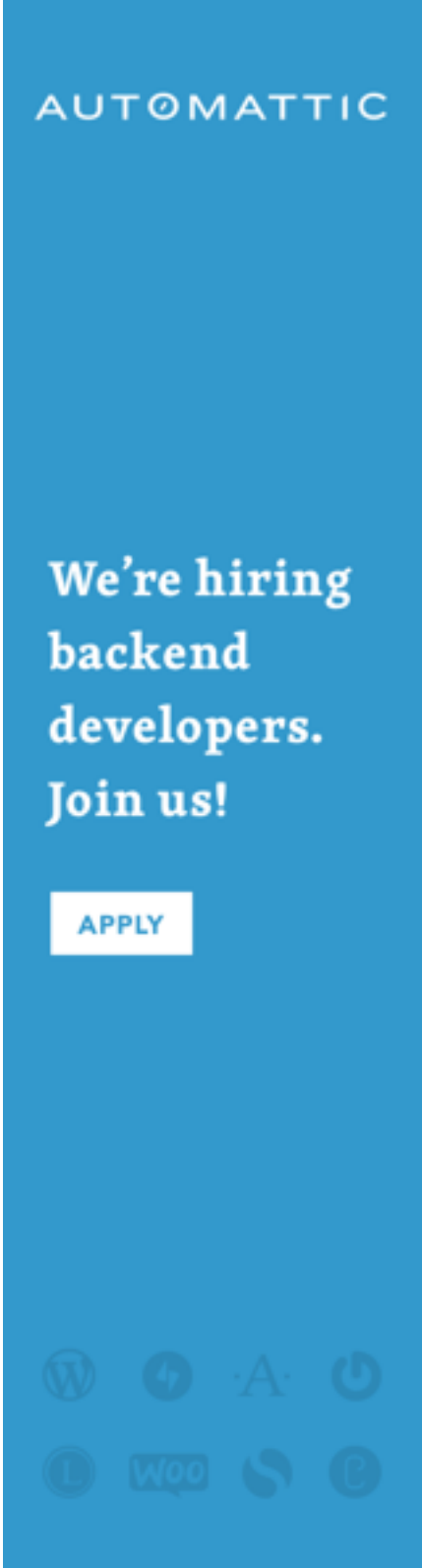
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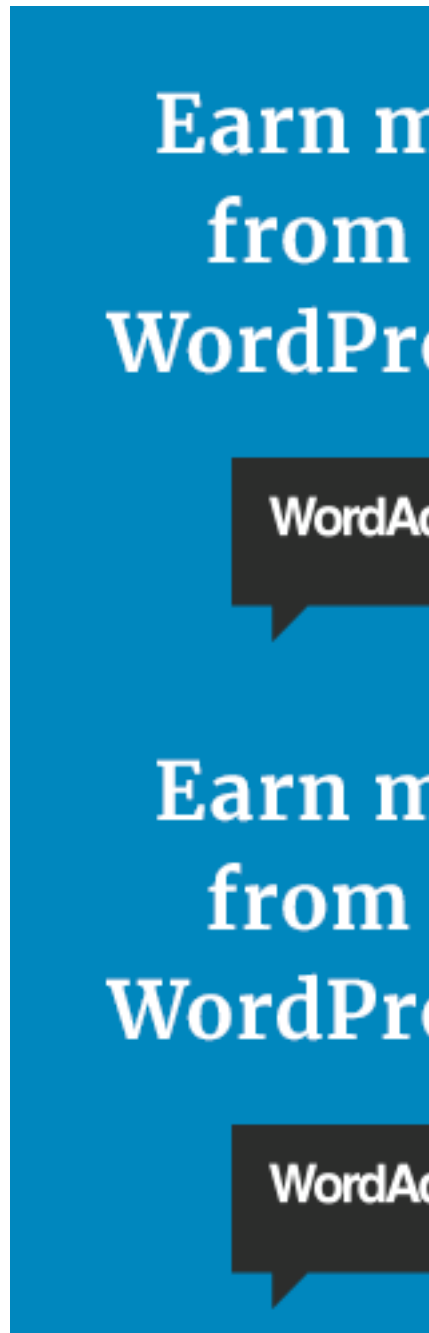
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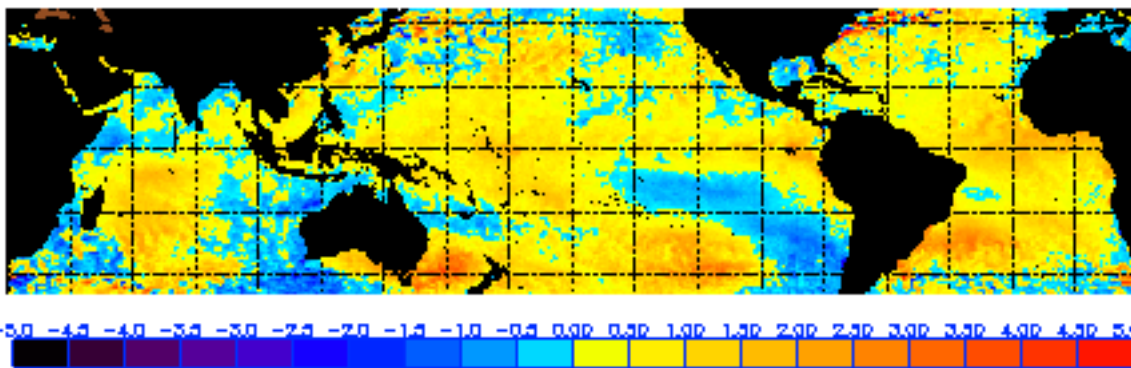
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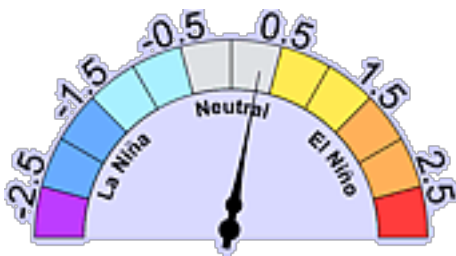


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