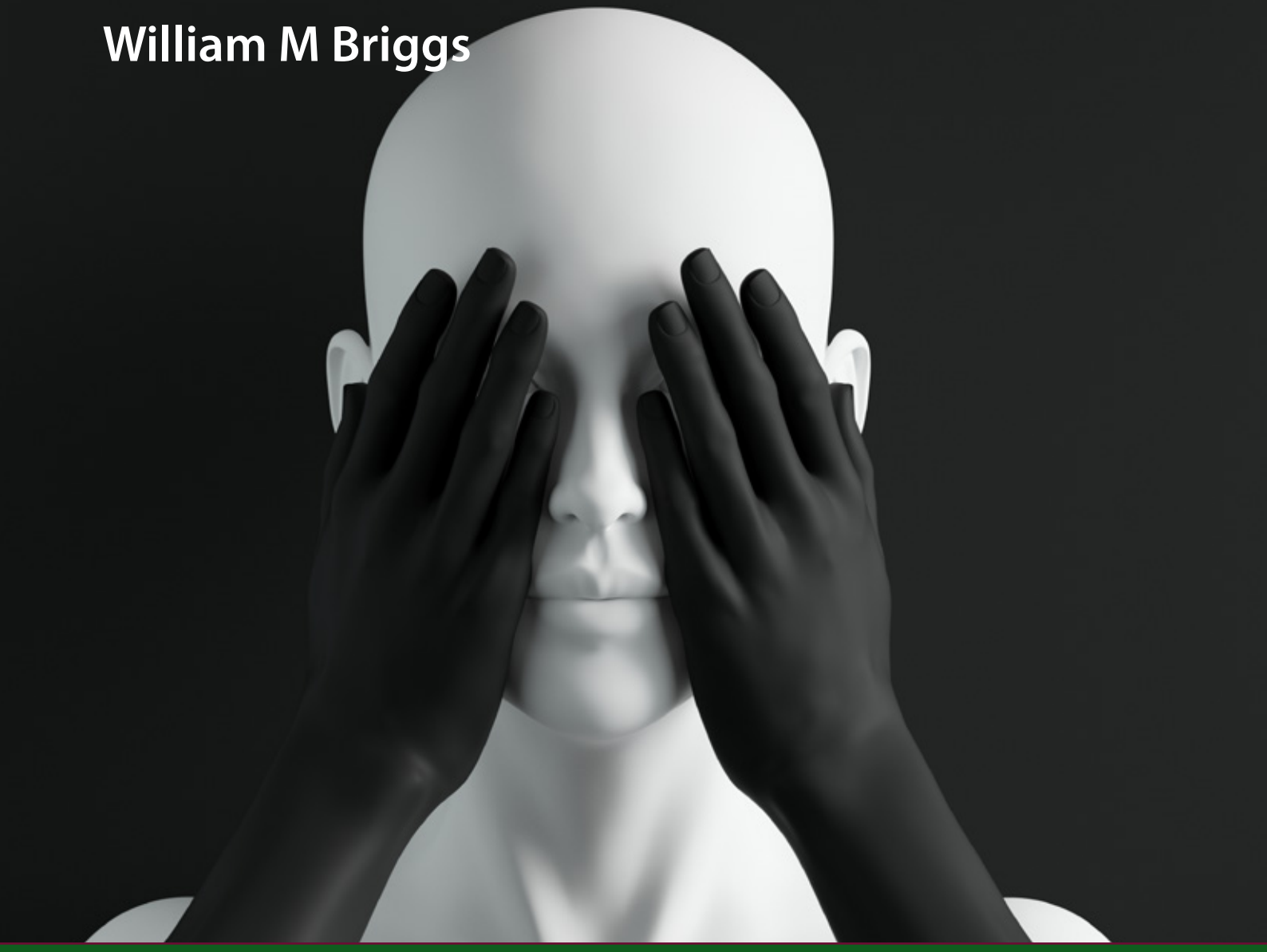
HOW THE IPCC SEES WHAT ISN'T THERE

William M Briggs



The Global Warming Policy Foundation
Note 27

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About the author

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What the IPCC can't see

The UN is out, once again, with its Intergovernmental Panel on Climate Change report. Assessment Report 6, or 'AR6', is in essence the same as AR5, which was the same as AR4, and so on back to the beginning with AR1 in 1990.

Drawing from one of the earlier ARs is what allowed the Pentagon to say in 2003 that 'in less than 20 years' (which would be before 2023) global warming would cause Britain to turn 'Siberian'. That the world would witness mega-famines, mega-droughts, climate terrorism, and even nuclear war.[1] IPCC leaders nodded in agreement. For instance, Sir John Houghton, former chief executive of the Met Office in Britain, said the Pentagon report was an 'important document'. Houghton was joined by many 'senior climatologists' who thought the end could be near. If we didn't act 'now'.

The same breathlessness is found in the new AR6. Its Summary for Policymakers opens by saying:

> It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.

It's not just that the climate has changed, for the climate on Earth has never, and will never, not change. It cannot 'stay still', at the least because the Sun and Earth are ever in flux and in movement relative to each other. But the IPCC wants us to know that all climate change due to mankind is bad. Never good.

For instance, they say (A.3.4): 'It is likely that the global proportion of major (Category 3–5) tropical cyclone occurrence has increased over the last four decades'. It is interesting they put it this way. It is only 'likely' large hurricanes and typhoons (i.e. tropical cyclones) have increased and not 'certain'. Why? How hard could it be to count them? After all, they're not small.

Only they *are* hard to count. Turns out oceans are big, and lots happens there that isn't seen by human eye, or even by satellite, especially historically. This lack of direct observation means changes in tropical storm number can't be certain, but must be estimated. That means modelling must be used, and all modelling brings uncertainty.[2]

It is most important to understand that the fuzziness in historical observations is 'first-level' uncertainty. There is then a *second*-level uncertainty in blaming the change in observations on mankind, which is done by layering a second model atop the first. This extra modelling 'doubles' the uncertainty. Or should.

It is our contention that both uncertainties are underestimated; a long-winded way of saying the IPCC is too sure of itself; not just in tropical cyclone numbers, but in everything. Consider that where observations are plentiful and sure, as

in the North Atlantic, no increase in hurricanes has been found, in any category.[3] Yet does the IPCC blame, or rather credit, this 'no change' on mankind? The question answers itself.

The IPCC maintains the 'total human influence' on the climate is large and certain. And that all climate change is bad. To check these assertions, we must first examine what has happened with the climate, and second look at how scientists justify claims that mankind is to blame.

What actually happened

The IPCC is sure it's getting bad out there, everywhere and with everything, and that mankind is to blame. They say things such as (A.3.5):

> Human influence has likely increased the chance of compound extreme events since the 1950s. This includes increases in the frequency of concurrent heatwaves and droughts on the global scale (high confidence); fire weather in some regions of all inhabited continents (medium confidence); and compound flooding in some locations (medium confidence).

And that (box TS.10) there has been an 'increase in fire weather conditions due to human influence'. And that (A.3.4):

> Event attribution studies and physical understanding indicate that human-induced climate change increases heavy precipitation associated with tropical cyclones (high confidence) but data limitations inhibit clear detection of past trends on the global scale.

And that (also box TS.10):

> Some recent hot extreme events would have been extremely unlikely to occur without human influence on the climate system.

We can't possibly go through every claim of change. But we can distinguish claims of *what* happened from what *caused* what supposedly happened. Now some claims of changes in bad (and even good) weather are sure to be true, even in the absence of human influence. No one thinks the weather can only improve. Yet not all is bad, either. For example, tornadoes are not increasing, and the number of days on which tornadoes occur in North America is even decreasing. How curious that we never know what fraction of beneficial trends are attributable to mankind.[4]

But so certain are some that tornadoes *should* be increasing, because theory demands it, that they invent new measures (instead of raw numbers) to 'discover' increases. With this freedom of interpretation, it would be almost impossible not to 'find' what you look for. This free-wheeling technique is used in many studies cited by the IPCC.[5]

Roger Pielke Jr has done a terrific job summarising the IPCC says about bad events: which have increased and which haven't. It has not observed flooding, winter storms, thunderstorms,

hail, lightning, or extreme winds to have increased. On the other hand, it says heat waves, heavy precipitation, and weather conducive to fire have.[6] And it says meteorological and hydrological droughts have not increased, but that ecological and agricultural droughts have.

This is an interesting distinction. The first two are discovered *inside* climate observations and models, but the second two are found *outside* of these models. Attributions must be made by correlating climate models and agricultural observations. The difficulties in this technique are investigated below, but a brief word here on what counts as climate-caused is appropriate.

A paper in *Nature Communications* helps us. It is 'Trends in flood losses in Europe over the past 150 years', by Dominik Paprotny and others, published in 2018.[7] The authors calculate that floods in Europe killed about 21,000 people between 1870 and 1899. That fell to about 14,000 dead between 1900 and 1929, 12,000 in 1930–1959, about 6,000 in 1960–1989, and just over 2,000 between 1990 and 2016. This is an unambiguous improvement in climate-related fatalities. But it's even better than it seems, because before 1900 there were fewer than 300 million people in Europe, and there are 746 million now. That means the rate of fatalities has not just fallen, it has, remarkably, plunged. As more people live in the same space, fewer in total *and* in proportion are dying from floods.

But we can still make this sound bad, and blame global warming on it, if we concentrate on a different metric. One such is cost of damages. Paprotny found that flood costs were about €380 billion in 1870–1899 (expressed in 2011 Euros), a figure which rose to €450 billion in 1960–1989. This increase can be touted as caused by 'climate change.'

Or it can be recalled that population roughly tripled in the same period, so that we'd expect, all things equal, over a trillion euros in damages in the latter period because of population increase alone. That it didn't go so high can then be said, by the same logic, to be a salutary effect of global warming. The truth is that any metric that involves behaviour and population can be made to look bad or good, by ignorant or unscrupulous manipulation, and by misattributing cause.

Why you can't trust attribution or fingerprinting studies

The IPCC discusses two kinds of attribution, but they are the same at the end of the day. The first is to say the warming that has been observed – or rather the warming indicated in the reconstructed and 'corrected' data – is due to mankind. The second is to say that various 'extremes' (such as floods and droughts), observed or projected, should be blamed on mankind.

All attribution studies work around the same basic theme, but with minor variations. These variations are not of great inter-

est to us; they involve various modelling tricks and tweaks, but do not change the basic idea. Here's how the steps go.

A model of the climate as it does not exist, but which is claimed to represent what the climate would look like had mankind not 'interfered' with it, is run many times. The outputs from these runs is examined for some 'bad' or 'extreme' event, such as higher temperatures or increased numbers of hurricanes making landfall, or rainfall exceeding some amount. The frequency with which these bad events occur *in the model* is noted. Next, a model of the climate as it is said to now exist is run many times. This model represents global warming. The frequencies from the same bad events *in the model* are again noted. The frequencies between the models are then compared. If the model of the current climate has a greater frequency of the bad event than the imaginary (called 'counterfactual') climate, the event is said to be *caused* by global warming, in whole or in part.

If the frequency of the bad event is greater in the imaginary climate, well, you'll never hear of it. These studies are never published. Neither are any studies published that seek good events, such as pleasant summer afternoons, which we would surely expect more of were the claims of global warming true. Attribution studies are used only as bludgeons to ensure you believe global warming is an irredeemable evil.

Besides this, there is a glaring deficiency in these studies. Before we can trust the claims of any attribution, *the physical models themselves have to be perfect*. They must be accurate every time they make a prediction, and in every thing predicted; not just temperature, but rainfall, snowfall, pressure, dew point, cloud cover and type. Everything.

If the model of the current climate is perfect, it will correctly assess the frequency of any weather event, good or bad. If the model is less than perfect, we have no way of knowing whether the model frequency of any event matches reality or not. And since we cannot know that, we cannot attribute *any* cause of the changes in frequency.

Some attribution advocates try to avoid this need for perfection by saying model frequencies need only be 'statistically indistinguishable' from event frequencies in the true and counterfactual climates[8]. Even if this is so, there is still uncertainty in the model samples; that is, the model frequencies are only *estimates* of the true climate frequencies. Estimates have uncertainty, and that uncertainty must be accounted for, which makes attribution claims that much harder to make.

Anyway, the models are nowhere near perfection, even statistically. Curiously, the worse the climate model is, the easier it is to blame things on global warming. If, for instance, the model is coded to say (in mathematical language) 'hurricanes increase a lot when temperature increases a little', then the frequency of hurricanes in the current climate model will be high, and low in the imaginary climate model.

That sounds crude, but it is a logical necessity that math-

ematical language like this exists in models, else models could *never* say anything whatsoever about hurricanes. A clever modeler can make the frequency of any bad event as large as he likes, either by design or unconscious bias. Therefore, the *only* way to check if the model is any good is if its future predictions match reality. If the frequency of projected events doesn't match eventual outcomes, we cannot trust the climate model nor its attributions.

Saying 'future predictions' sounds like a redundancy, but it's not. Some modelers base their assumptions of model goodness on how well the model 'predicts' historical data. But since this data is used to fit and build the model, this is an inadequate check. The model-building process (in *every* science) guarantees models will always fit historical data well, but this *never* means the model will, with certainty, predict *future* data well. Every model must be checked against future reality before any trust can be put in it.

Worse, if the so-called 'current climate model' is imperfect, we have no way of knowing whether the first model – the imaginary or counterfactual model that is claimed to represent the climate as it would be if mankind had no influence – is right or wrong. There is no way on earth to check it. Its veracity must always be taken on faith. At least the current climate model can be checked by making future forecasts of bad events; checking the imaginary/counterfactual model will always be impossible. This isn't necessarily damning, because if, *and only if*, the current model is perfect, then it is fine to trust modeller assertions about the counterfactual model's accuracy.

All of this is academic, because we already know the current models are 'too hot'; they predict temperatures warmer than turn out in reality. In the 27 July 2021 *Science* article 'UN climate panel confronts implausibly hot forecasts of future warming', it was explained that 'climate scientists' face the 'alarming reality [that] the climate models that help them project the future have grown a little too alarmist':[9]

> Many of the world's leading models are now projecting warming rates that most scientists, including the modelmakers themselves, believe are implausibly fast. In advance of the UN report [released a week later], scientists have scrambled to understand what went wrong and how to turn the models, which in other respects are more powerful and trustworthy than their predecessors, into useful guidance for policymakers.

Unfortunately, '[by] the time modelers exposed that bias [of too high temperatures], the supercomputing runs were already done and the IPCC report was nearing completion.' But instead of choosing to delay AR6, knowing climate models were wrong, they issued it anyway. Because they trusted what the known-to-be-wrong models were saying, and they believed the attributions. Even, it is stressed, as they knew they couldn't be correct.

This is true faith in 'the' science.

We're not finished. There is a third layer of uncertainty to consider: the statistical modelling that is done *on top* of the observed modelling frequencies. This is a complex process whereby the observed modelling frequencies are input into highly sensitive statistical 'extreme value' procedures, all of which have their own knobs to twist and turn. And since we are talking about fitting an entire distribution based only on a handful of observations of rare events, those knobs can turn quite freely. So sensitive are these procedures that, as we noted in the GWPF report *The Climate Blame Game: Are we really causing extreme weather?*,[10] the same bad events are both blamed and not blamed on mankind, depending on who is making the observations and running the climate and statistical models.

We also have the evidence from a new paper by Ross McKitrick in *Climate Dynamics* that shows the theoretical basis of the most common fingerprinting techniques is wrong, and therefore causal attributions are in error.[11]

All that has been said so far concerns climate-model-based bad (never good!) events: things we can draw directly from the models, such as temperature or precipitation. But it doesn't address events that are not inside the models themselves, such as deaths or costs said to be from climate events.[12] Assuming all these exterior observations are measured without error (a large assumption), this brings us to our fourth layer of uncertainty. A fourth set of models, correlating the external events with internal climate models, is slathered on top of all the other models.

Here the eternal caution, known to all scientists, that correlation doesn't imply causation is cast to the waves, and any correlation, no matter how minor, is said to be causative. Or rather implied to be. Most scientists know how much they can get away with, so outright claims of causation aren't always made. They leave those to politicians and journalists, who are shameless.

The end of attributions

This has been a difficult summary of a heated topic, so let's review how climate scientists become too sure of themselves.

We first have the uncertainty in the events themselves, in the historical weather data, which is often reconstructed or has errors in measurement. The uncertainty in these reconstructions and past measurements is invariably tossed aside, or lays forgotten, and the data, stripped of uncertainty, are used to build climate models.

The next level of uncertainty is in blaming (only) bad events on man. We saw that these claims implicitly assume perfect climate models. But we also saw open admissions that these models are imperfect, that they are too hot. This climate model failure is sufficient to discard all claims of attribution. But there is still more uncertainty to come.

There is a third level, which involves arcane statistical models of 'extreme' events – regressions and other procedures – which are very sensitive; so much so that different people running the same procedures can and do come to different conclusions.

Finally comes the fourth level of uncertainty, in which weak correlations of climate models, and events exterior to models, are taken to be causative and definitive.

At this point we have 'quadrupled' the uncertainty – the reader understands this is a metaphor and not a definite mathematical claim. This level of uncertainty is so high that, in honesty, propositions about bad (never good!) events caused by global warming are weak watery dilutions that should never be taken seriously.

Yet they are.

Acknowledgements

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Notes

1. https://www.theguardian.com/environment/2004/feb/22/usnews.theobserver.

2. See this GFDL presentation on hurricanes, for example: https://www.gfdl.noaa.gov/wp-content/uploads/files/user_files/gav/presentations/2009/obs_hurr_gfdl_lunchtime_vecchi.pdf.

3. See this US Environmental Protection Agency graph: https://www.epa.gov/climateindicators/climate-change-indicators-tropical-cyclone-activity.

4. See https://www.spc.noaa.gov/publications/mccarthy/tor30yrs.pdf.

5. See e.g. Moore TW and Fricker T, 'Tornadoes in the USA are concentrating on fewer days, but their power dissipation is not'; *Theoretical and Applied Climatology 2020;* 142: 1569–1579.

6. https://rogerpielkejr.substack.com/p/how-to-understand-the-new-ipcc-report-1e3.

7. https://www.nature.com/articles/s41467-018-04253-1.

8. See e.g. A Ribes, FW Zwiers, JM Azais and P Naeu, 'A new statistical approach to climate change detection and attribution', *Climate Dynamics* 2017; 48: 367–386.

9. https://www.sciencemag.org/news/2021/07/un-climate-panel-confronts-implausibly-hot-forecasts-future-warming.

10. Briggs M, *The Climate Blame Game: Are We Really Causing Extreme Weather?* Note 25, Global Warming Policy Foundation, 2021.

11. McKitrick R, 'Checking for model consistency in optimal fingerprinting: a comment', 2021, *Climate Dynamics*, https://link.springer.com/article/10.1007\%2Fs00382-021-05913-7. See also the layman's summary of the paper: McKitrick R, *Suboptimal Fingerprinting*. Note 27, Global Warming Policy Foundation, 2021.

12. See https://iopscience.iop.org/article/10.1088/1748-9326/11/7/074006.

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