

BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

In re:

Endangerment and Cause or
Contribute Findings for Greenhouse
Gases Under Section 202(a) of the
Clean Air Act

EPA Docket No.

EPA-HQ-OAR-2009-01

SUPPLEMENT TO PETITION FOR RECONSIDERATION OF
“ENDANGERMENT AND CAUSE OR CONTRIBUTE FINDINGS FOR
GREENHOUSE GASES UNDER SECTION 202(a) OF THE CLEAN AIR
ACT”

Filed by

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SUPPLEMENT TO PETITION FOR RECONSIDERATION OF “ENDANGERMENT AND CAUSE OR CONTRIBUTE FINDINGS FOR GREENHOUSE GASES UNDER SECTION 202(A) OF THE CLEAN AIR ACT”

Pursuant to Section 307(d) of the Clean Air Act, 42 U.S.C. § 7607(d) and 5 U.S.C. § 553(e), the Concerned Household Electricity Consumers Council (“CHECC”), consisting of Joseph D’Aleo, Clement Dwyer, Jr., Russell C. Slanover, Scott M. Univer, James P. Wallace III, Robin D. Weaver and Douglas S. Springer, hereby supplement their January 20, 2017 Petition (“Petition”) to the U.S. Environmental Protection Agency (“EPA” or “the Agency”) to convene a proceeding for reconsideration of the “Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act” published by the Agency on December 15, 2009 (74 F.R. 66496, Dec. 15, 2009) (original EPA Docket No. Docket EPA-HQ-OAR-2009-171) (“the Endangerment Finding”), by submitting the following:

INTRODUCTION

CHECC and its members submit this Supplement to their Petition to provide new highly relevant information.

First, we submit a new April 2017 Research Report by Dr. James P Wallace III, Dr. John R. Christy, & Joseph S. D’Aleo, titled “On the Existence of a ‘Tropical Hot Spot’ & the Validity of EPA’s CO₂ Endangerment Finding, Abridged Research Report, Second Edition” (Wallace (2017)). Wallace (2017) analyzes, in a distinctly different fashion, the same 14 temperature data records that were analyzed in Wallace (2016), which is the Research Report on which our original Petition principally relied. Because the analysis is distinct, the results of this new Research Report, Wallace (2017), must be considered separate from the results reported in Wallace (2016).

Second, new information is submitted regarding the logically invalid use of climate models in the attribution of warming to human greenhouse gas (GHG) emissions.

Third, new information is submitted relevant to the invalidation of the “Tropical Hot Spot” and the resulting implications for the three lines of evidence, a subject that was also discussed in our original Petition.

I. A JUST-RELEASED PEER REVIEWED CLIMATE SCIENCE RESEARCH REPORT, WALLACE (2017), HAS PROVEN THAT IT IS ALL BUT CERTAIN THAT EPA’S BASIC CLAIM THAT CO2 ENDANGERS HUMAN HEALTH AND WELFARE IS TOTALLY FALSE.

The authors of the new research (Wallace (2017))¹ summarize their work as follows:

This research failed to find that the steadily rising atmospheric CO₂ concentrations have had a statistically significant impact on any of the 14 temperature data sets that were analyzed. The tropospheric and surface temperature data measurements that were analyzed were taken by many different entities using balloons, satellites, buoys and various land based techniques. We submit that, if regardless of data source, the analysis results are the same, the analysis findings should be considered highly credible.

The analysis results invalidate EPA’s CO2 Endangerment Finding, including the climate models that EPA has claimed can be relied upon for policy analysis purposes. Moreover, these research results clearly demonstrate that once the solar, volcanic and oceanic activity, that is, natural factor, impacts on temperature data are accounted for, there is no “record setting” warming to be concerned about. In fact, there is no Natural Factor Adjusted Warming at all. The authors of this report claim that there is no published, peer reviewed, statistically valid proof that past increases in atmospheric CO2 concentrations have caused the officially reported rising, even claimed record setting temperatures.

The full text of Wallace (2017) may be found at <https://thsresearch.files.wordpress.com/2017/04/ef-data-research-report-second-editionfinal041717-1.pdf>.

¹ Both Wallace (2016) and Wallace (2017) were prepared on a pro bono basis. Petitioners’ counsel also appear pro bono.

Since increasing CO₂ concentrations from human emissions were not found to have any statistically significant impact on any of the temperature data sets analyzed, it follows that such increases in CO₂ cannot cause any endangerment of human health and welfare as previously found by EPA in the Endangerment Finding.

II. THE IMPROPER USE OF CLIMATE MODELS IN THE ATTRIBUTION OF WARMING TO HUMAN GHG EMISSIONS

The invalidation of climate models – one of the three lines of evidence – shown independently by Wallace (2016) and Wallace (2017) warrants additional comment in light of how such climate models are used in EPA’s Endangerment Finding to attribute warming to human emissions of GHGs.

The explicit, and mathematically incorrect, premise of using traditional climate models to detect and attribute global warming to anthropogenic GHG emissions is that these models are capable of valid and reliable simulations of the climate system, both with and without the forcing of such emissions. As the IPCC’s Fifth Assessment Report (“AR5”) explained:

The evaluation of model simulations of historical climate is of direct relevance to detection and attribution (D&A) studies (Chapter 10) *since these rely on model-derived patterns (or ‘fingerprints’) of climate response to external forcing, and on the ability of models to simulate decadal and longer-time scale internal variability* (Hegerl and Zwiers, 2011).

See AR5, Section 9.8.2. (Emphasis added). Similarly, the National Research Council explained the logic behind the use of modeling in detection and attribution as follows:

Formal detection and attribution of an anthropogenic influence over the physical climate system is based on analysis of spatial and temporal patterns in observations of climate parameters and on comparison of their statistical characteristics with those of the same patterns as simulated by climate models. Because models can be integrated by applying the known external forcings in designed experiments (natural only, anthropogenic only, natural

and anthropogenic jointly) or in unforced mode (i.e., a control simulation), the behavior of the system subjected to different forcings as well as in control mode can be characterized, and the observed behavior of the real climate system can be compared to test consistency with a naturally varying process or with a process subjected to externally (especially manmade) forcings, to a given degree of statistical confidence.

National Research Council (2011) *Climate Stabilization Targets: Emissions, Concentrations and Impacts over Decades to Millennia*, Section 1.2, p. 53.

EPA's 2009 Endangerment Finding and the related Technical Support Document ("TSD") likewise explicitly relied upon the ability of models to simulate the climate both with and without anthropogenic forcing to attribute observed warming to human GHG emissions:

Attribution studies evaluate whether observed changes are consistent with quantitative responses to different forcings (from GHGs, aerosols, and natural forcings such as changes solar intensity) represented in well-tested models and are not consistent with alternative physically plausible explanations.

TSD, p. 47.

Climate model simulations by the IPCC, shown in Figure 5.1, suggest natural forcings alone cannot explain the observed warming (for the globe, the global land and global ocean). The observed warming can only be reproduced with models that contain both natural and anthropogenic forcings.

TSD, p. 49.

The U.S. Climate Change Science Program, Synthesis and Assessment Product 1.3, at p. 59 describes the use of models in attribution as follows:

The tool used for attribution of external forcing, either to test the signal (see Section 3.1.2.2) due to anthropogenic greenhouse gas and atmospheric aerosol changes or land use changes, or natural external forcing due to volcanic and solar forcing,

involves coupled ocean-atmosphere-land models forced by observed external forcing variations.

The National Climate Assessment (2014) (NCA 2014) Appendix 3, Message 4 also makes explicit that detection and attribution of anthropogenic global warming relies on climate models:

Climate simulations are used to test hypotheses regarding the causes of observed changes. First, simulations that include changes in both natural and human forcings that may cause climate changes, such as changes in energy from the sun and increases in heat-trapping gases, are used to characterize what effect those factors would have had working together. Then, simulations with no changes in external forcings, only changes due to natural variability, are used to characterize what would be expected from normal internal variations in the climate. The results of these simulations are compared to observations to see which provides the best match for what has really occurred.

NCA 2014, Appendix 3, pp. 750-751.

From these descriptions of the logic of using models for attribution - logic adopted by EPA's Endangerment Finding – it is very clear that the attribution methodology could work properly only if the climate models relied on have first been validated with very high confidence as accurately portraying temperature patterns both with and without additional GHG forcing.² In this regard, the TSD and assessment literature on which EPA relies all describe the logic of using climate models in attribution in similar terms. All of these reports clearly state that the premise of using climate models in attribution is that such models are properly validated, provide reliable forecasts, and are unable to reproduce observed warming without the additional forcing from anthropogenic GHGs. Wallace (2016) and Wallace (2017) both independently demonstrate that this premise is false. Both reports show that Natural Factors alone explain all the warming. Climate models show a pattern of warming in the tropical troposphere that simply does not exist in nature. Thus, the premise

² It is not at all clear how such a traditional climate model could ever be validated in a mathematically proper fashion with respect to natural variability alone when the tropospheric temperature data is only available since 1959 for balloons and 1979 for satellites when there has been a rapid rise in CO2 concentration over this entire period.

upon which EPA used climate models for attribution in the Endangerment Finding has been invalidated. Therefore, simple but insistent logic precludes the use of invalidated models to attribute warming to human emissions of GHGs, and requires reconsideration of the Endangerment Finding.

Wallace (2016) and Wallace (2017) also make the following point:

Unlike some research in this area, this research does not attempt to evaluate the existence of the THS in the real world by using the climate models. This would constitute a well-known error in mathematics and econometrics in that such climate models obviously must include all relevant theories, possibly including some not even known today; many, if not all, of which could impact Tropical temperatures.

Thus, it is never mathematically proper to attempt to validate any theory embedded in a model using the model itself. Each such theory needs to be tested outside of the model construct.

Wallace (2016), p. 14.

Wallace (2016) and Wallace (2017) evaluate the Tropical Hot Spot Theory outside of the model construct, and demonstrate that it is conclusively invalidated.

In his March 29, 2017 Congressional testimony Dr. John R. Christy contrasted the methodology used in Wallace (2016) and Wallace (2017) with that used in developing the traditional climate models relied upon in EPA's Endangerment Finding as follows:

The advantage of the simple statistical treatment [used in Wallace (2016)] is that the complicated processes such as clouds, ocean-atmosphere interaction, aerosols, etc., are implicitly incorporated by the statistical relationships discovered from the actual data. Climate models attempt to calculate these highly non-linear processes from imperfect parameterizations (estimates) whereas the statistical model directly accounts for them since the bulk atmospheric temperature is the response-variable these processes impact. It is true that the statistical model does not know what each sub-process is or how each might interact with other

processes. But it also must be made clear: it is an understatement to say that no IPCC climate model accurately incorporates all of the nonlinear processes that affect the system. I simply point out that because the model is constrained by the ultimate response variable (bulk temperature), these highly complex processes are included.

The fact that this statistical model {typically} explains 75-90 percent of the real annual temperature variability, depending on dataset, using these influences (ENSO, volcanoes, solar) is an indication the statistical model is useful. - - - This result promotes the conclusion that this approach achieves greater scientific (and policy) utility than results from elaborate climate models which on average fail to reproduce the real world's global average bulk temperature trend since 1979.

<https://science.house.gov/sites/republicans.science.house.gov/files/documents/HHRG-115-SY-WState-JChristy-20170329.pdf>, see pp. 10-11.

There are two final relevant points regarding these two modeling approaches. First, the statistical modeling approach used in Wallace (2016) and Wallace (2017) facilitates detection of data manipulation, as discussed at p. 61 of Wallace (2016) and pp. 43 and 58 of Wallace (2017), because such manipulation is in effect an omitted explanatory variable that shows up in the residuals. Second, such tampering with temperature data corrupts the most critical dependent variable used for model parameter estimation in global climate models. This inexorably leads to nonsensical parameter estimates and climate model forecasts – which is exactly what the climate models have provided.

III. THE INVALIDATION OF THE HOT SPOT THEORY

The importance of the Tropical Hot Spot to EPA's claimed "basic physical understanding of climate" was discussed in the original Petition. A further comment on AR5's treatment of the Hot Spot controversy is in order. In the AR5 Second Order Draft, Section 9.4.1.3.2 concluded its discussion of the Hot Spot controversy as follows:

Nevertheless, almost all model ensemble members show a warming trend in both LT and MT larger than observational estimates (McKittrick 2010; Po-Chedley and Fu, 2012; Santer et al., 2012).

...

In summary, there is high confidence (robust evidence although only medium agreement) that most, though not all, CMIP3 and CMIP5 models overestimate the warming trend in the tropical troposphere during the satellite period 1979–2011. *The cause of this bias remains elusive.*

Second Order Draft, Section 9.4.1.3.2 (emphasis added). In the final AR5, however, this last paragraph was revised to the following:

In summary, most, though not all, CMIP3 and CMIP5 models overestimate the observed warming trend in the tropical troposphere during the satellite period 1979–2012. ~~The cause of this bias remains elusive.~~ Roughly one-half to two-thirds of this difference from the observed trend is due to an overestimate of the SST trend, which is propagated upward because models attempt to maintain static stability. There is *low confidence* in these assessments, however, due to the *low confidence* in observed tropical tropospheric trend rates and vertical structure (Section 2.4.4).

AR5 Section 9.4.1.4.2, p. 773 (deletions in strike-through, additions in red) (emphasis in original).

While the text of the final version of Section 9.4.1.4.2 claims that “both model ensembles [CMIP3 and CMIP5] overlap the observational ensemble,” Figure 10.SM.1, which depicts in panel (b) the vertical temperature profile in the tropics, shows they do not:

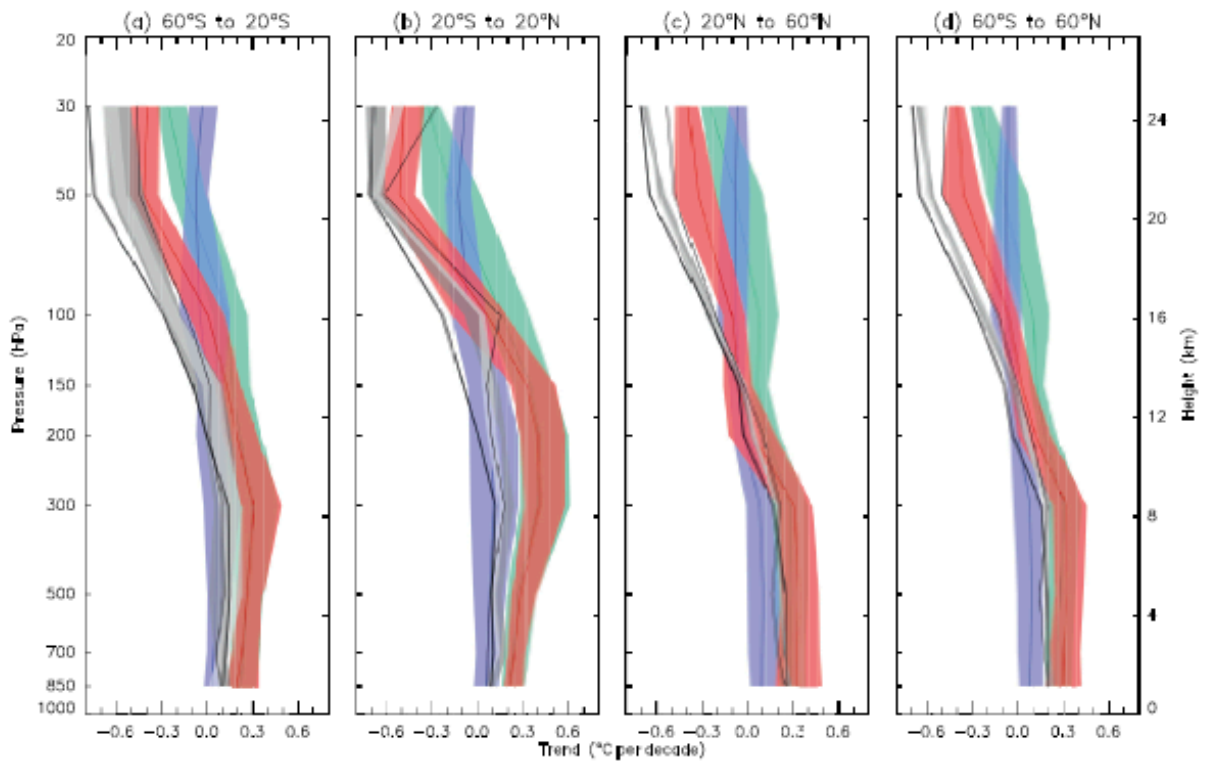


Figure 10.SM.1 | Observed and simulated zonal mean temperatures trends from 1979 to 2010 for CMIP5 simulations containing both anthropogenic and natural forcings (red), natural forcings only (blue) and greenhouse gas forcing only (green) where the 5th to 95th percentile ranges of the ensembles are shown. Three radiosonde observations are shown (thick black line: Hadley Centre Atmospheric Temperature data set 2 (HadAT2), thin black line: Radiosonde Observation Correction using REanalyses (RAOBCORE) 1.5, dark grey band: Radiosonde Innovation Composite Homogenization (RICH)-obs 1.5 ensemble and light grey: RICH- τ 1.5 ensemble. (Adapted from Lott et al. (2013) but for the more recent period from 1979 to 2010.)

On its own this is a highly significant fact. But it is also significant that Figure 10.SPM.1(b) was placed not in the body of the report, but in the Supplementary Materials, with no comment or discussion. Moreover, the design of the figure obscured its contradiction of the claim in Section 9.4.1.4.2 that models and observations overlap.

Dr. John Christy, in testimony before the House Science and Technology Committee on March 29, 2017, made plain that which the IPCC labored to obscure. Christy's Figure 5 is as follows:

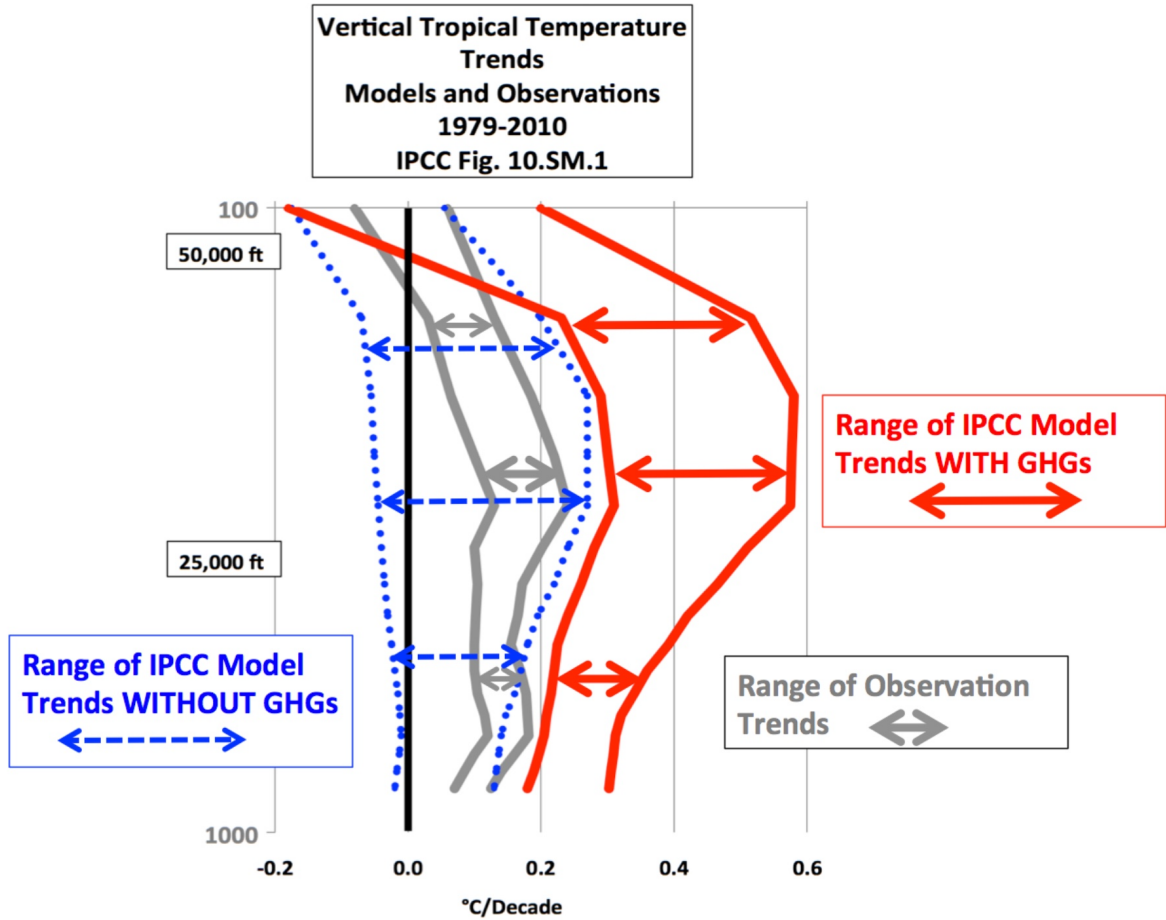


Figure 5. Simplification of IPCC AR5 shown above in Fig. 4 [Figure 10.SPM.1(b)]. The colored lines represent the range of results for the models and observations. The key point displayed is the lack of overlap between the GHG model results (red) and the observations (gray). The non-GHG model runs (blue) overlap the observations almost completely.

See

<https://science.house.gov/sites/republicans.science.house.gov/files/document/s/HHRG-115-SY-WState-JChristy-20170329.pdf>, p. 9. The trend of the

models differs from the trend of the observations at the 99% confidence level.

Id. As Dr. Christy explained in his prepared testimony:

What is immediately evident [from Fig. 5] is that the model trends in which extra GHGs are included lie completely outside of the range of the observational trends, indicating again that the

models, as hypotheses, failed a simple “scientific-method” test applied to this fundamental, climate-change variable. ...

Incredibly, what Fig. 5 shows is that the bulk tropical atmospheric temperature change is modeled best when *no extra* GHGs are included – a direct contradiction to the IPCC conclusion that observed changes could only be modeled *if extra* GHGs were included.

Id. p. 9-10. (Emphasis in original).

The explicit premise of using climate models in attribution, repeatedly set forth in the TSD and the assessment literature on which EPA relies, is clearly invalid. Climate models, one of EPA’s three lines of evidence, cannot properly be used for attribution.

CONCLUSION

The Petition for Reconsideration should be granted. EPA should convene a reconsideration proceeding that is tightly focused on the validity of the three lines of evidence and their use in attributing warming to human emissions of GHGs.

Respectfully submitted, this 8th day of May, 2017.

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