

10 March 2016

Prof. Anthony R. Lupo
Department of Soil, Environmental, and Atmospheric Sciences
University of Missouri
Columbia, MO 65211

Dear Prof. Lupo,

Please find the manuscript, "Propagation of Error and the Reliability of Global Air Temperature Projections," for submission to *Advances in Meteorology*.

This study reports the first propagation of error through GCM global surface air temperature projections.

It is a standard of science to evaluate the predictive reliability of a physical model by propagation of error. However, until now, GCMs have never been so evaluated.

New critical results include:

1. A demonstration that all emissions-based global surface air temperature projections are just linear extrapolations of greenhouse gas forcing.
2. Long-wave cloud fraction (LCF) error is highly correlated among CMIP5 GCMs, implying a common systematic theory-bias.
3. Systematic LCF error propagates through air temperature projections, with uncertainty growing as the root-sum-square.
4. LCF error propagation yields an uncertainty of ± 15 C in centennial global averaged surface air temperature projections.

The conclusion is that even CMIP5 climate models are unable to resolve the impact of greenhouse gases on global averaged surface air temperature.

While the error analysis is very straight-forward, these results are clearly controversial. Therefore the Supplementary Material provides extensive confirmatory data and analysis.

Transparency requires informing you that prior versions of this manuscript have been submitted to other journals. However, an Editor's Supplement is provided to show you that prior reviews exhibited astonishingly fundamental misunderstandings of error analysis. These misunderstandings obviated any critical content from the reviews.

Given the difficulties climate modelers apparently have with physical error analysis, it is respectfully suggested that scientific reviewers be restricted to physicists and physical meteorologists.

Meteorological and physicist reviewers might include:

Prof. Yong-Sang Choi, EW University, Seoul: ysc@ewha.ac.kr

Dr. Randall J. Scalise, Southern Methodist University: scalise@smu.edu

Prof. Demetris Koutsoyiannis, Technical University of Athens: dk@itia.ntua.gr
Prof. David M. Harrison, University of Toronto: david.harrison@utoronto.ca
Prof. William Happer, Princeton University: happer@Princeton.EDU
Dr. Hyo-Jong Song, SUNY, Albany: hsong2@albany.edu
Prof. Anastasios Tsonis, University of Wisconsin: aatsonis@uwm.edu

Experts in validation and error assessment of numerical models include:

Dr. Jon C. Helton, Sandia National Labs: jchelto@sandia.gov
Prof. Christopher Roy, Virginia Tech: cjroy@vt.edu
Dr. William Oberkampf, Sandia National Labs: wloberk@sandia.gov

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Finally, thank-you very much for your consideration, and I await your reply.

Yours sincerely,

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