

On the Existence of a “Tropical Hot Spot “& The Validity of EPA’s CO₂ Endangerment Finding

Research Report Executive Summary

Background

On December 15, 2009, EPA issued its Green House Gas (GHG) Endangerment Finding, which has driven very significant and costly regulations beginning with CO₂. Focusing primarily on the time period since 1950, EPA’s Endangerment Finding predicated on Three Lines of Evidence, claims that Higher CO₂ Emissions have led to dangerously Higher Global Average Surface Temperatures.

Relevance of this Research

The assumption of the existence of a “Tropical Hot Spot (THS)” is critical to all Three Lines of Evidence in EPA’s GHG/CO₂ Endangerment Finding.

Stated simply, first, the THS is claimed to be a fingerprint or signature of atmospheric and Global Average Surface Temperatures (GAST) warming caused by increasing GHG/CO₂ concentrations¹. The proper test for the existence of the THS in the real world is very simple. Are the slopes of the three temperature trend lines (upper & lower troposphere and surface) all positive, statistically significant and do they have the proper top down rank order?

¹ See U.S. Climate Change Science Program, Synthesis and Assessment Product 1.1, Temperature Trends in the Lower Atmosphere - Understanding and Reconciling Differences, Chapter 1, p. 18-19, https://www.gfdl.noaa.gov/bibliography/related_files/vr0603.pdf

Second, higher atmospheric CO₂ and other GHGs concentrations are claimed to have been the primary cause of the claimed record setting GAST over the past 50 plus years.

Third, the THS assumption is imbedded in all of the climate models that EPA still relies upon in its policy analysis supporting, for example, its Clean Power Plan--recently put on hold by a Supreme Court Stay. These climate models are also critical to EPA's Social Cost of Carbon estimates used to justify a multitude of regulations across many U.S. Government agencies.

Objectives of the Research

The objective of this research was to determine whether or not a straightforward application of the proper mathematical methods would support EPA's basic claim that CO₂ is a pollutant. Stated simply, their claim is that GAST is primarily a function of four explanatory variables: Atmospheric CO₂ Levels, Solar Activity, Volcanic Activity, and a coupled ocean-atmosphere phenomenon called the El Niño-Southern Oscillation (ENSO.)

The first objective of this research was to determine, based on the very considerable relevant and credible tropical temperature data evidence, whether or not the assumed THS actually exists in the real world.

The second related objective was to determine whether, adjusting ONLY for ENSO impacts, anything at all unusual with the Earth's temperatures seemed to be occurring in the Tropics, Contiguous U.S. or Globally. It is a well-known meteorological fact that, other things equal, El Ninos lead to a global scale warming and La Ninas a global scale cooling, whose magnitudes are related to their ENSO strengths.

The third objective was to determine whether the rising atmospheric CO₂ concentrations alone can be shown to have had

a statistically significant impact on the trend slopes of often – publically -quoted temperature data.

It should be noted that in carrying out this research project, every effort was made to minimize complaints that this analysis was performed on so-called “cherry picked temperature data”. To avoid even the appearance of such activity, the authors divided up responsibilities, where Dr. Christy was tasked to provide temperature data sets that he felt were most appropriate and credible for testing the THS as well as the two other EPA Endangerment Finding hypotheses. All told, thirteen temperature time series (9 Tropics, 1 Contiguous U.S. and 3 Global) were analyzed in this research. The econometric analysis was done by Jim Wallace & Associates, LLC, and when completed, cross checked by the two other authors as well as seven reviewers.

Findings of the Research

These analysis results would appear to leave very, very little doubt but that EPA’s claim of a Tropical Hot Spot (THS), caused by rising atmospheric CO₂ levels, simply does not exist in the real world. Also critically important, even on an all-other-things-equal basis, this analysis failed to find that the steadily rising Atmospheric CO₂ Concentrations have had a statistically significant impact on any of the 13 critically important temperature time series data analyzed.

Thus, the analysis results invalidate each of the Three Lines of Evidence in its CO₂ Endangerment Finding. Once EPA’s THS assumption is invalidated, it is obvious why the climate models they claim can be relied upon, are also invalid. And, these results clearly demonstrate--13 times in fact--that once just the ENSO impacts on temperature data are accounted for, there is no “record setting” warming to be concerned

about. In fact, there is no ENSO-Adjusted Warming at all. These natural ENSO impacts are shown in this research to involve both changes in solar activity and the well-known 1977 Pacific Climate Shift.

Moreover, on an all-other-things-equal basis, the research strongly implies that there is no statistically valid proof that past increases in Atmospheric CO₂ Concentrations have caused the officially reported rising, even claimed record setting temperatures.

Finally, regarding the credibility of these research findings, the temperature data measurements that were analyzed were taken by many different entities using balloons, satellites, buoys and various land based techniques. Needless to say, if regardless of data source, the results are the same, the analysis findings should be considered highly credible.

Study Authors & Reviewers

Authors

Dr. James P. Wallace III
Jim Wallace & Associates, LLC
50 Years Mathematical Modelling Team Management
Ph.D., Economics, Minor in Engineering, Brown University
M.S., Mechanical Engineering, Brown University
B.S., Aeronautical Engineering, Brown University

Dr. John R. Christy
Distinguished Professor of Atmospheric Science, Alabama State
Climatologist and Director of the Earth Science System Science Center at
the University of Alabama in Huntsville.
Lead Author, Contributing Author and Reviewer of United Nations IPCC
assessments.
Awarded NASA's Medal for Exceptional Scientific Achievement.
Elected a Fellow of the American Meteorological Society in 2002

Joseph S. D'Aleo
CCM, AMS Fellow
BS, MS Meteorology University of Wisconsin
ABD NYU, Honorary Doctorate VSC
45 years operational and research meteorology

Reviewers

Dr. Harold H. Doiron
Retired VP-Engineering Analysis and Test Division, InDyne, Inc.
Ex-NASA JSC, Aerospace Consultant
B.S. Physics, University of Louisiana - Lafayette
M.S., Ph.D., Mechanical Engineering, University of Houston

Dr. Theodore R. Eck
Ph.D., Economics, Michigan State University
M.A, Economics, University of Michigan
Fulbright Professor of International Economics
Former Chief Economist of Amoco Corp. and Exxon Venezuela
Advisory Board of the Gas Technology Institute and Energy Intelligence Group

Dr. Craig D. Idso
Chairman, Center for the Study of Carbon Dioxide and Global Change
Ph.D., Geography, Arizona State University
M.S., Agronomy, University of Nebraska, Lincoln
B.S., Geography, Arizona State University

Dr. Richard A. Keen
Instructor Emeritus of Atmospheric and Oceanic Sciences, University of Colorado
Ph.D., Geography/Climatology, University of Colorado
M.S., Astro-Geophysics, University of Colorado
B.A., Astronomy, Northwestern University

Dr. Anthony R. Lupo
IPCC Expert Reviewer
Professor, Atmospheric Science, University of Missouri
Ph.D., Atmospheric Science, Purdue University
M.S., Atmospheric Science, Purdue University

Dr. Thomas P. Sheahen
Ph.D., Physics, M.I.T.
B.S., Physics, M.I.T.

Dr. George T. Wolff
Former Chair EPA's Clean Air Scientific Advisory Committee
Ph.D., Environmental Sciences, Rutgers University
M.S., Meteorology, New York University
B.S., Chemical Engineering, New Jersey Institute of Technology

Research Report Endorsement

The authors of this research are very much interested in knowing the names and credentials of individuals who would like to add their names to the list of scientists whose names already appear in the report under the following statement:

“The Undersigned Agree with the Conclusions of this Report.”

After reading and thinking about this research report, if you would like to have your name added to such a list, please send your name and credentials in a fashion similar to those listed in the report.

Please send this information to the following dedicated email address: frostdoc@aol.com