

# Global Warming and Settled Science

By [Andre Lofthus](#)

The AGW community would have you believe that the science in favor of AGW is settled. As a professional scientist, a physicist with 40 years experience in aerospace and extensive knowledge of atmospheric physics, I can tell you that, indeed, the science is settled, but not the way the AGW extremists would have you believe. Atmospheric transmission measurements taken in the 1950s demonstrate conclusively that increasing CO<sub>2</sub> concentration in the atmosphere cannot be the cause of global warming if global warming even exists.

A basic principle of science is that correlation does not prove causation. Climate scientists are working overtime fudging temperature related data showing global warming over many decades that correlates with the industrial revolution and increasing use of carbon-based fuels. Climate scientists are boldly asserting that this correlation proves global warming is caused by increased CO<sub>2</sub> in the atmosphere.

Real scientists would demand to know the physics of how increased CO<sub>2</sub> in the atmosphere causes global warming. Is there any real physics behind this unsupported bold assertion? As I am about to explain, based on test data from the 1950s, there is not.

There are three points I want to make that fall in the categories of physics and atmospheric physics. First, molecules in the atmosphere absorb lightwaves over what are called spectral bands. The spectral band can be narrow, as small as a single wavelength, or broad, covering a continuum of wavelengths or frequencies. This molecular absorption causes increased vibration within the molecule exciting certain vibration modes. The physics of each molecule determine which wavelengths can be absorbed to excite internal vibrations. Spectral band absorption in the atmosphere can be quantified based on measurements over a certain distance through the atmosphere such as “90 per cent absorption in this spectral band over a distance of 300 m at sea level through the atmosphere”.

The second point is not really atmospheric physics, but more fundamental. Objects like the earth emit a spectrum, or wavelength continuum, of radiation that is completely described by “[Planck’s Law](#)” of black body radiation, derived in the 1900 by Nobel-winning physicist Max Planck. That curve predicts the peak intensity of light from the sun in the visible spectral band, and the peak intensity of light emitted by the earth in the LWIR spectral band. Planck’s curve has been validated by experimental data for over a hundred years, and was a huge breakthrough for the physics community in the 20th Century.

The third point is that there are two spectral bands in which the CO<sub>2</sub> molecule absorbs infrared radiation. The first band is in what is called the Medium Wave InfraRed (MWIR) spectrum, and the second spectral band is in the LWIR spectrum. Both bands are created by absorption of energy in a CO<sub>2</sub> molecule to excite stretching and/or bending modes of vibration within the molecule. The MWIR band of absorption excites stretching vibration modes, and the LWIR band of absorption

excites bending vibration modes.

Of these two bands, the LWIR band is the most important in the absorption of infrared radiation from the earth because it is centered in the LWIR where most of the energy radiated by the earth is located, and is at least 5 times wider than the MWIR band. The center wavelength of the LWIR absorption band for the CO<sub>2</sub> molecule is 15 μm with a width of about 1 μm. By comparison, the center wavelength at which the maximum spectral radiant emittance occurs for the earth (based on Planck's Law) is approximately 9.5 μm with significant amounts of energy contained in radiation with wavelengths that extend out to beyond 25 μm.

So, there is a spectral band centered at 15 μm where the CO<sub>2</sub> molecules happily absorb radiating energy in the atmosphere to excite bending modes of vibration within each molecule. This band is in the LWIR where most of the radiation from the earth is contained, and has a spectral width of about 1 μm. This is a small but not insignificant portion of the more than 20 μm wide spectral band over which the earth radiates in the LWIR.

A reference book published by the Office of Naval Research, a department of the U.S. Navy, titled [\*The Infrared Handbook\*](#) was published in 1978 and is used as a bible by everyone I know in the IR community. Atmospheric transmission data at sea level is contained in this book based on measurements that were taken in the 1950 time frame, much before any recent increases in the concentration of CO<sub>2</sub> in the atmosphere. These particular measurements are over a path length of 300 m, and cover the IR spectrum from short-wave infrared out to beyond 20 μm in the LWIR (see "Field Measurements of Atmospheric Transmission"). In the LWIR absorption band of CO<sub>2</sub> (center wavelength of 15 μm) the transmission measured is 0.0 due to CO<sub>2</sub> absorption. That is, total 100% absorption over 300 m at sea level in the spectral absorption band of CO<sub>2</sub> that would capture the most energy, or "heat", being radiated by the earth's surface.

Increasing the concentration of CO<sub>2</sub> in the atmospheric mixture of gasses present in the 1950s by burning fossil fuels or by bovine flatulence will not increase the measured absorption in the CO<sub>2</sub> LWIR band above the 100% level that was measured and reported in *The Infrared Handbook*. You cannot get more than 100% absorption. It is not physically possible. And yet that appears to be the basis of the theory of "man made" global warming

The science of anthropogenic global warming is settled, and has been for decades. Just not the way the AGW alarmists would have you believe. Increased amounts of CO<sub>2</sub> in the atmosphere cannot be the cause of global warming, if global warming even exists.

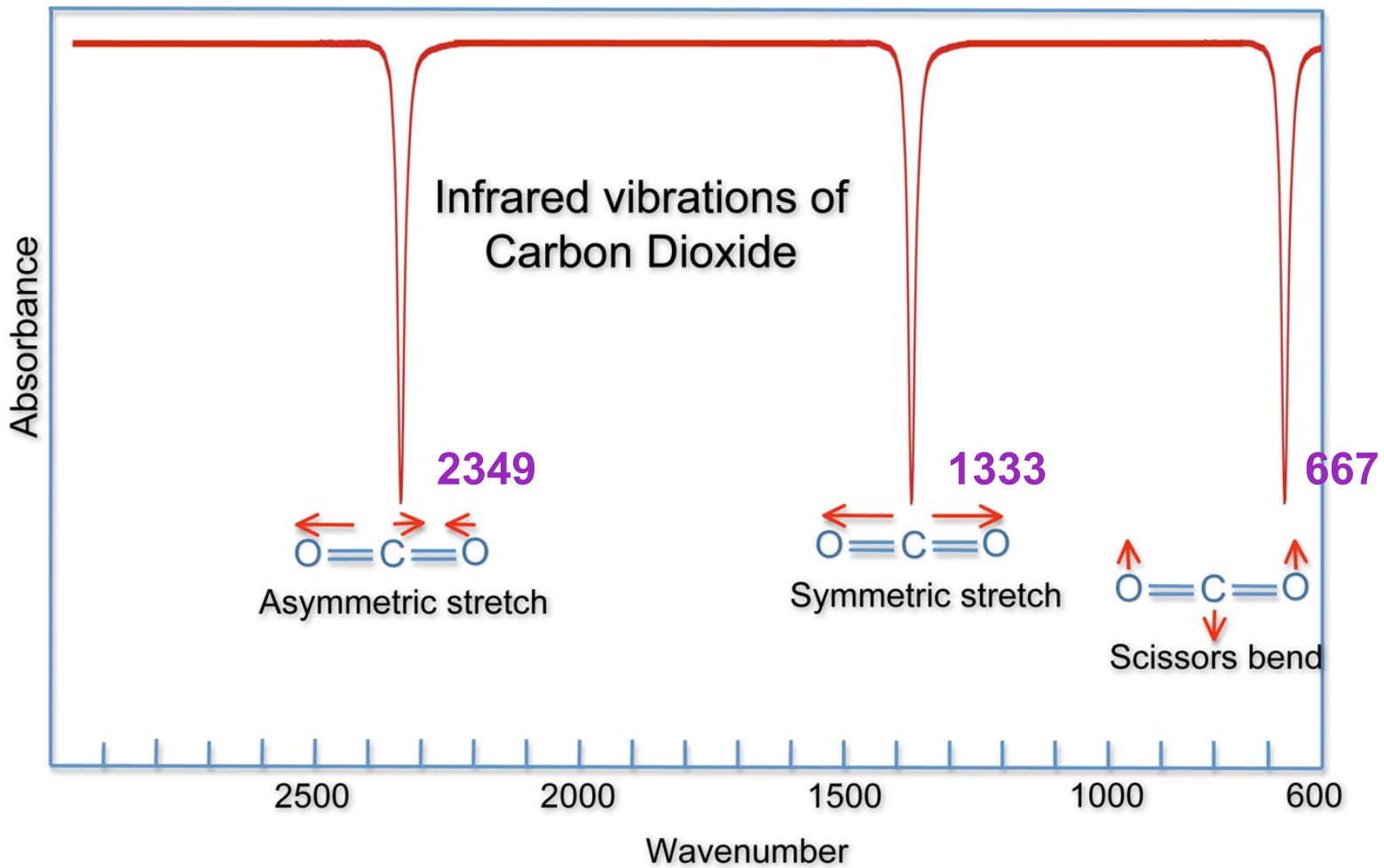
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Recommended: Dr. Don Easterbrook US Senate testimony: <http://wp.me/p2FjTj-3n9>

**Zeller-Nikolov kill AGW**

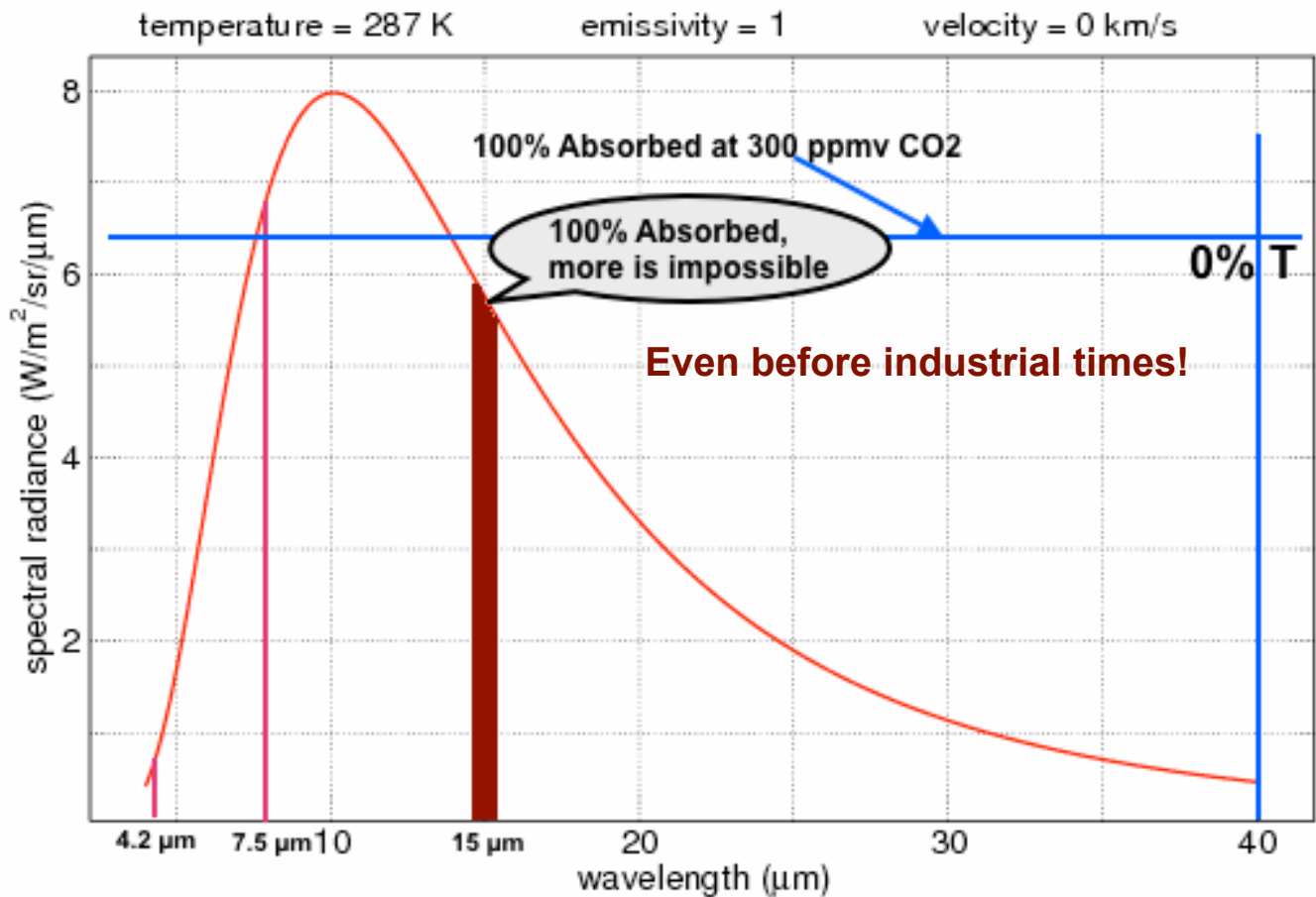
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Nobel prize laureate:  
<https://youtu.be/Y1FnWFIDvxE>



More CO<sub>2</sub> cannot absorb more infrared radiation as all available radiation is already absorbed!

This is the reason all climate models have failed. Ignore fundamental science and become a "carbonhead".

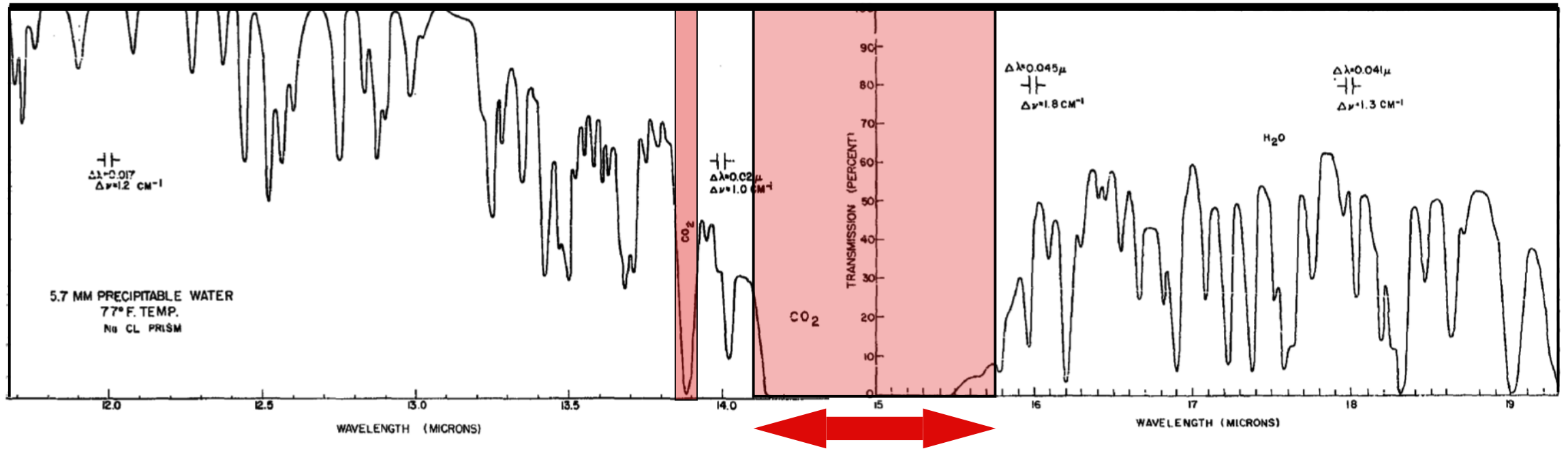


The band that CO<sub>2</sub> can absorb. Courtesy of SpectralCalc.com

The above spectral radiance curve is based on Planck's law.

# PROVEN AND SETTLED SCIENCE

## ENERGY ABSORBED BY CARBON DIOXIDE AT THE TEMPERATURE EARTH RADIATES

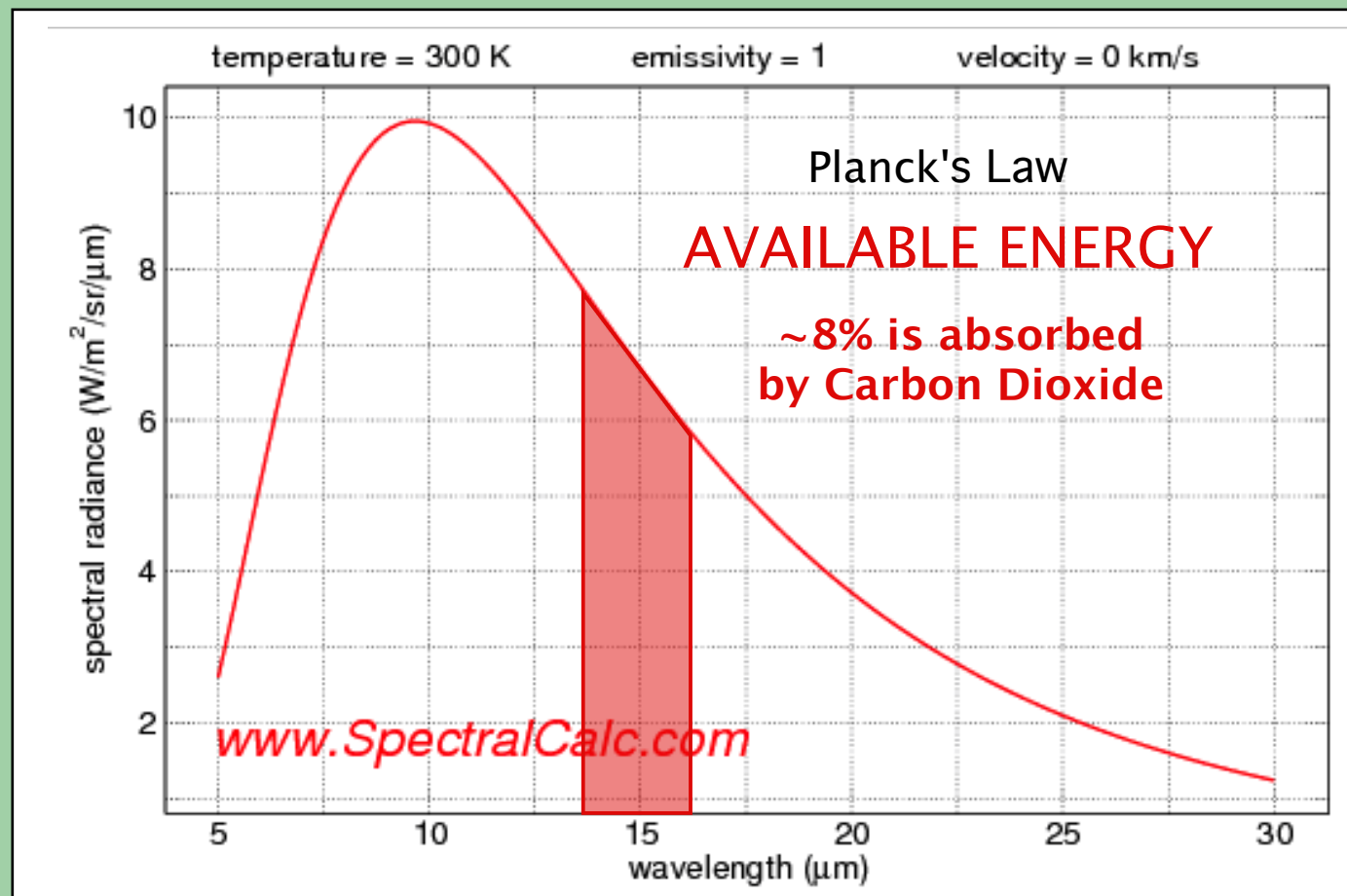


ZERO TRANSMISSION = ALL AVAILABLE ENERGY IS ABSORBED. MORE CANNOT BE ABSORBED BY MORE CARBON DIOXIDE

UNITED STATES NAVY IR TRANSMISSION FIELD MEASUREMENTS IN 1950's USING 300 m PATH OF AIR AT SEA LEVEL

SEE CHAPTER 5 IN "THE INFRARED HANDBOOK"

[www.dtic.mil/dtic/tr/fulltext/u2/240188.pdf](http://www.dtic.mil/dtic/tr/fulltext/u2/240188.pdf)



<https://www.opednews.com/articles/1/The-Zeller-Nikolov-climate-by-Christopher-Calder-Al-Gore-Al-Gore-Biofuels-Climate-Change-181228-572.html>

Nature created the fundamental mathematical relationship now known as  $E=mc^2$ . A mathematical finding, if proven valid, is a real phenomenon; as real as finding a diamond in a river bed. Nature creates fundamental mathematical relationships; humans only discover them. The straightforward and crystal-clear mathematical discovery by Dr. Karl Zeller and Dr. Ned Nikolov has many enemies. If their finding is proven accurate, it could bankrupt the wind and solar industries and put heavy pressure on politicians to end biofuel mandates. It would embarrass most politicians and almost all climate scientists, even those who believe carbon dioxide has no significant effect on Earth temperatures.

The Zeller-Nikolov climate finding uses official NASA data to quantify the average temperatures of the hard-surfaced satellite bodies orbiting our Sun. The formula is not applicable to the gas planets: Jupiter, Saturn, Uranus, and Neptune. Zeller and Nikolov claim to be able to determine the long-term average temperature of Venus, Earth, Mars, Titan (a moon of Saturn), and Triton (a moon of Neptune) by using just two informational values: their distance from the Sun and their atmospheric pressure.

Zeller and Nikolov have found that the gaseous composition of atmospheres is immaterial to determining long-term average temperatures. For example, the atmosphere of Venus is composed of 96.5% carbon dioxide, while Earth's atmosphere contains only 0.04% carbon dioxide, yet those vast differences are irrelevant to the mathematical calculations required to determine average temperatures. This mathematical proof tells us that even though Venus has 2,412 times more carbon dioxide than Earth measured as a percentage of its atmosphere, that  $CO_2$  has no measurable effects on its average long-term temperature. Zeller and Nikolov claim that carbon dioxide and all the other atmospheric gases only contribute to temperature by their physical mass and resultant atmospheric pressure. They point out that their predictions for planets and moons are accurate to within one degree Celsius, a confidence-inspiring finding so precise that coincidence can reasonably be ruled out.

The Zeller-Nikolov discovery means that Earth's atmosphere keeps us warm via gas-compression heating under the weight of Earth's approximately 300-mile-thick atmosphere, not by the greenhouse effect. An actual greenhouse has a glass wall enclosing it. Earth has no enclosure and is open to space, so the two scientists suggest that the term "greenhouse effect" be replaced by "atmospheric thermal enhancement." Heat is created by compressing atmospheric gases through the pull of gravity. Similarly, in a diesel engine a piston is used to compress gases to generate enough heat to eliminate the need for a spark plug. The tremendous gravitational pull on the enormous mass of Earth's atmosphere combined with solar radiation warms our planet just enough to allow carbon-based life forms to flourish. If carbon dioxide was the powerful greenhouse gas alarmists claim it to be, the calculations for Venus would have to be dramatically different than the calculations for Earth, but they are the same. This tells us that  $CO_2$  has no measurable direct effect on planetary temperature, which makes perfect sense as the Earth has experienced severe ice ages when atmospheric  $CO_2$  levels were many times higher than they are today.

The carbon dioxide-driven greenhouse gas theory Swedish scientist Svante Arrhenius first proposed in 1896 has never been proven valid by empirical testing. Svante's ideas sounded plausible, so people accepted them without proof. More recently, American politicians literally ordered the IPCC to burn through enormous amounts of taxpayer dollars concocting wild and fanciful computer-model projections based on Svante's assumptions. As the old computer-programming saying goes, "garbage in, garbage out" (GIGO).

All of the IPCC's doomsday climate predictions have failed to materialize despite our heavily biased media's best efforts to distort and exaggerate. Ordinary summer heat waves and winter

storm activity has been falsely portrayed as precursors to the end of the world, which will certainly come unless we elect more Democrats. Climate gurus keep pushing the date of catastrophe into the future because the global doom they keep predicting never arrives. What has arrived are ordinary and expected minor fluctuations in Earth's climate that have been going on since Earth was formed. Ask yourself, when did the Earth have a climate that was more pleasant and beneficial to mankind than the climate we have today? The honest answer is simply never.

Despite multiple technical reviews by scientists around the world, no one has found error in Zeller and Nikolov's mathematical formulas and specific computations. Objections raised against their discovery are largely that it does not fit accepted climate theories that are professionally and politically popular. Climate science has become an Orwellian tool of political power and an enormous money-making profession for scientists, professors, universities, state and federal government employees, and a thousand and one green-scams businesses. Just think of all the billions of dollars being spent on "global warming" and the mandated false remedies. No doom equals no costly remedies and no profits for those selling fear.

Real scientists know that you cannot control the weather with windmills and solar panels any more than you can control the weather with bowling balls and statues of dead politicians, yet the costly and impractical renewable-energy fad continues. Crony capitalists and ambitious but scientifically naive politicians from Alexandria Ocasio-Cortez, to Beto O'Rourke, to billionaire Michael Bloomberg want taxpayers to spend trillions of dollars on energy schemes that have already raised the cost of food and energy all over the world. This has harmed the world's poor far more than the wealthy, the very opposite of what liberals are supposed to stand for. Now they want us to dramatically escalate our war against the carbon atom, the very element all our food and our own bodies are made of. Carbon creatures fighting carbon; human events rarely get more twisted and surreal than this.

[4-minute YouTube interview with Dr. Karl Zeller](#)

[21-minute YouTube Nikolov presentation](#)

PAPER 1 [New Insights on the Physical Nature of the Atmospheric Greenhouse Effect Deduced from an Empirical Planetary Temperature Model](#)

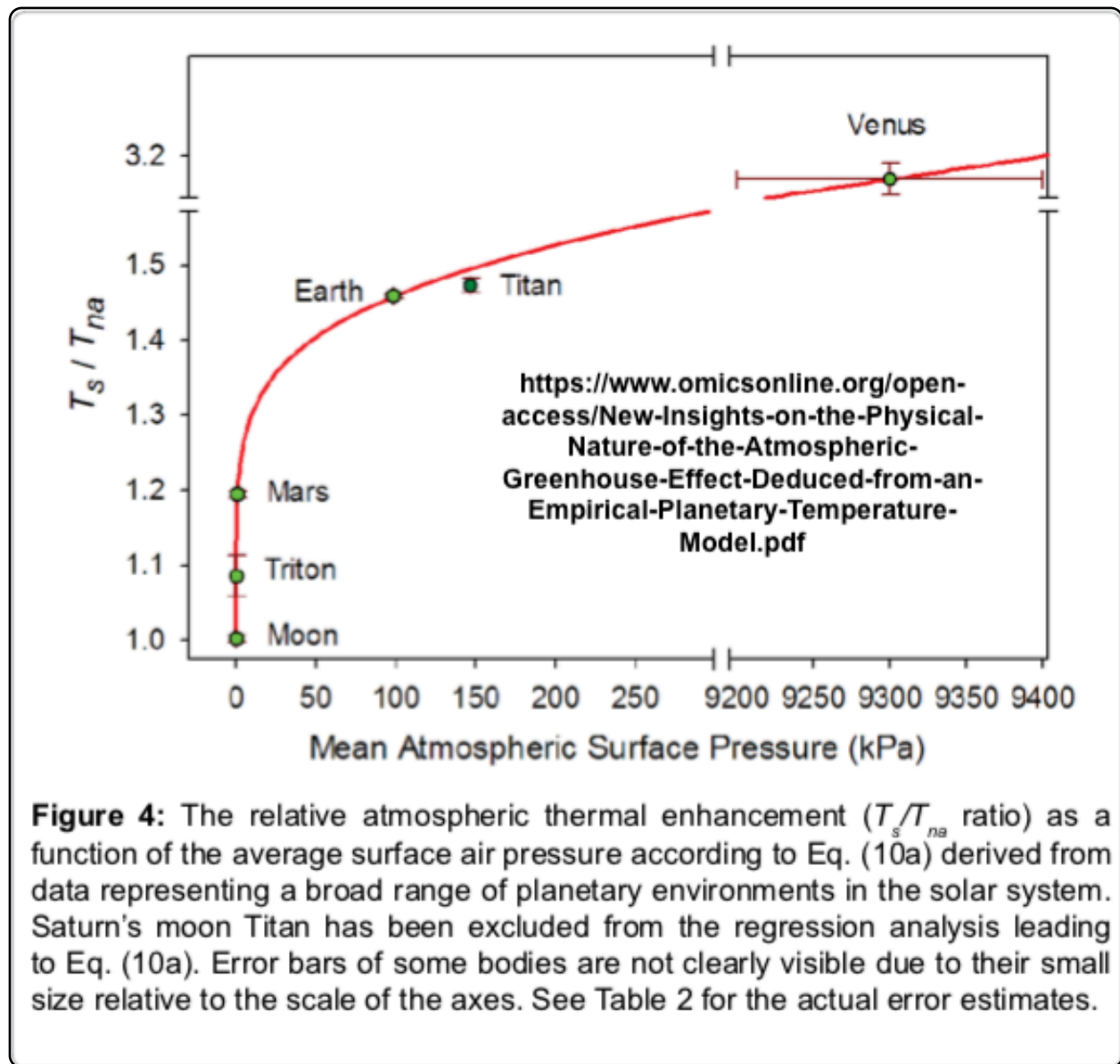
PAPER 2 [Unified Theory of Climate - Expanding the Concept of Atmospheric Greenhouse Effect Using Thermodynamic Principles: Implications for Predicting Future Climate Change](#)

- The 'greenhouse effect' is not a radiative phenomenon driven by the atmospheric infrared optical depth as presently believed, but a pressure-induced thermal enhancement analogous to adiabatic heating and independent of atmospheric composition;
- The down-welling LW radiation is not a global driver of surface warming as hypothesized for over 100 years but a product of the near-surface air temperature controlled by solar heating and atmospheric pressure;
- The albedo of planetary bodies with tangible atmospheres is not an independent driver of climate but an intrinsic property (a byproduct) of the climate system itself. This does not mean that the cloud albedo cannot be influenced by external forcing such as solar wind or galactic cosmic rays. However, the magnitude of such influences is expected to be small due to the stabilizing effect of negative feedbacks operating within the system. This understanding explains the observed remarkable stability of planetary albedos;
- The equilibrium surface temperature of a planet is bound to remain stable (i.e. within  $\pm 1$  K) as long as the atmospheric mass and the TOA mean solar irradiance are stationary. Hence, Earth's

climate system is well buffered against sudden changes and has no tipping points;

- The proposed net positive feedback between surface temperature and the atmospheric infrared opacity controlled by water vapor appears to be a model artifact resulting from a mathematical decoupling of the radiative-convective heat transfer rather than a physical reality.

The hereto reported findings point toward the need for a paradigm shift in our understanding of key macro-scale atmospheric properties and processes. The implications of the discovered planetary thermodynamic relationship (Figure 4, Eq. 10a) are fundamental in nature and require careful consideration by future research. We ask the scientific community to keep an open mind and to view the results presented herein as a possible foundation of a new theoretical framework for future exploration of climates on Earth and other worlds.



**Figure 4:** The relative atmospheric thermal enhancement ( $T_s / T_{na}$  ratio) as a function of the average surface air pressure according to Eq. (10a) derived from data representing a broad range of planetary environments in the solar system. Saturn's moon Titan has been excluded from the regression analysis leading to Eq. (10a). Error bars of some bodies are not clearly visible due to their small size relative to the scale of the axes. See Table 2 for the actual error estimates.