Disproof of the Greenhouse Gas Theory and Anthropogenic Global Warming Hypothesis

A prevalent political movement of the early 21st century is based upon invalid theoretical physics, as this paper explains. Political action is being demanded by the general public, driven by a physics theory that is patently incorrect, in spite of its general acceptance by both sides of a heated scientific argument. This error is dangerous to the lives and welfare of many people.

The popular Anthropogenic Global Warming theory, aka "Climate Change", is thought to be caused by the "greenhouse effect", where energy from the Sun is being trapped by the minor gases (altogether comprising < 1% of the atmosphere) CO_2, CH_4, chlorofluorocarbons (CFCs) and water vapour. These are termed "*greenhouse gases*" because of differences in molecular absorption, as compared to the primary atmospheric gases, N_2 and O_2, which together make up ~99% of the atmosphere. It is postulated that without the greenhouse gases, most of the energy from the Sun would radiate back into space.

Because hydrocarbon fuels are consumed by conventional power stations, vehicles, ships and aircraft, these foundations of modern civilizations exhaust "greenhouse gases", and their production is warming the earth irreparably, the argument claims. Methane and carbon dioxide are also produced by animal husbandry and food production, again contributing to this postulated global warming. CO_2, water vapour and CH_4 naturally exist in the atmosphere, but some scientists have blamed the gradual rise in levels of these gases upon the industrial revolution since the beginning of the 20th century, and thus for an apparent gradual rise in global temperature measurements. Attempts to reverse this "global warming", such as the Paris Accord and Kyoto Protocol, have centred on controlling or reducing CO_2 and CH_4 emissions.

The principal concept of the Greenhouse Gas theory is that N_2 and O_2 are diatomic molecules, (having only 2 atoms), and that they therefore can absorb less photon energy[1] than CO_2, CH_4 and H_2O, which have 3, 5 and 3 atoms in each molecule. This is posited because N_2 and O_2 molecules can vibrate in only 1-degree of freedom direction, along the axis connecting the two atoms in each molecule. Because there are more connections between atoms of the other "greenhouse gases", they have more degrees of freedom for vibration. This is true, and is confirmed by spectral analysis, which shows lines of absorption in the infrared wavelengths, between 700nm and 1mm, whereas N_2 and O_2 do not explicitly show spectral lines.

This paper shows how atmospheric molecules absorb thermal energy from photons, independent of their molecular structure, or the wavelength of the photons. It will additionally show that the Greenhouse Gas theory is invalid both with reference to Rayleigh's 1899 paper, which atmospheric photon-scattering theory remains valid to this day, and a new calculation of energy absorption using as an example an N_2 molecule. New understandings from the *standard model* of physics, from the most recent 50-years, establish clearly that photons interact with both electrons and neutrons. Finally, it will show the Greenhouse Gas theory invalid with respect to heat transfer theory, and contrary to some valid principles of knowledge, in the following sections:

1. *Kinetic Theory Analysis*
2. *Raleigh Photon Scatter Analysis*
3. *Photon Momentum Transfer Analysis*
4. *Thermal Energy Analysis and Climate Science Principles*
5. *Conclusion Disproving Climate Change Argument*
6. *Evidence in Support of Theoretical Challenge*
7. *Some Peer Reviews*

The atmospheric temperature is dependent rather on the velocity of molecules, primarily those of N_2 and O_2, making up 99% of the mass of the atmosphere, not the so-called "greenhouse gases", which have only minor effects in proportion to their tiny percentage composition of the air.

[1] Specifically in the infrared wavelengths, the spectral region where most energy radiates away from the Earth

The fundamental problem with the Greenhouse Gas theory is that it overlooks mainstream physics and heat transfer theory. **Atmospheric thermal energy is *not* primarily absorbed in the vibration of gas molecules, but in an increase of their translational velocity**.

1. Kinetic Theory Analysis

As per the Kinetic Theory of Gases, the mainstream-accepted scientific viewpoint, gases heat primarily by increasing their velocities, not their vibrations. We know from standard physics, as school and university instructors teach, that the pressure on a container wall is related to the average velocity of the molecules in the container, v, of volume V, and the number of molecules in the container, N

$$P = Nmv^2 / 3V, \text{ or}$$

$$\mathbf{PV = Nmv^2 / 3}$$

Which shows clearly ***the dependence of pressure on the velocity of molecules***. We can relate temperature of a gas using the Ideal Gas Law

$$\mathbf{PV = Nk_bT}$$

where k_b is the Boltzmann constant, and finally,

$$\mathbf{T = mv^2 / 3k_b}$$

Which shows that ***the temperature of a gas (including the Earth's atmosphere) is dependent upon its mass and the velocity of its molecules, independent of its molecular structure***. Gases do absorb thermal energy in their molecular vibration, and also the rotation of molecules about their centre of gravity, but so much less than their velocity that modern scientists and engineers basically can ignore these and base their temperature calculations on mass and velocity only.

2. Raleigh Photon Scatter Analysis

We should ask is there a mechanism via which thermal energy can be absorbed by all molecules in the atmosphere, independent of their molecular structure. For this we turn to original theoretical work by John William Strutt, 3rd Baron Rayleigh also known as Lord Rayleigh, in the seminal 1899 work *On the Transmission of Light through an Atmosphere…*

Here Rayleigh considers how molecules in the air scatter light, in correspondence with James Clerk Maxwell. This is important for our inquiry because if photons are scattered by molecules in the atmosphere, then we can expect that molecules will absorb the photon's momentum. **Photons travel uniformly near the speed of light, while molecules are travelling nearer the speed of sound**—substantially different magnitudes. Understanding how they absorb their momentum explains how N_2 and O_2 absorb IR spectrum energy, in spite of those two molecules not showing level energy changes in spectral analysis for IR wavelengths. Subsequently, we will calculate the amount of photon momentum that is absorbed by an N_2 molecule, for an example IR wavelength.

> *"The fraction of light scattered by a group of scattering particles is the number of particles per unit volume N times the cross-section. For example, the major constituent of the atmosphere, nitrogen, has a Rayleigh cross section of 5.1×10^{-31} m^2 at a wavelength of 532 nm (green light). This means that at atmospheric pressure, where there are about 2×10^{25} molecules per cubic meter, about a fraction 10^{-5} of the light will be scattered for every meter of travel."*
>
> Rayleigh's theory as described in Wikipedia

This direction of enquiry was established by Raleigh early in his paper, after observing that the colour of light from the Sun varied as the Sun descended into sunset. It is critical that modern scientists constantly return to physically observable phenomenon to verify their theories, as we will later in this present paper in the section on Evidence.

> *"…the spectrum of even a vertical sun is modified by the atmosphere in the direction of favouring the waves of' greater length"*

Rayleigh, 1899

As Raleigh discusses, both the phase of the EM energy and its intensity are altered as photons pass through the atmosphere, ignoring dust particles or aerosols.

> *"Let us now inquire what degree of transparency of air is admitted by its molecular constitution, i.e., in the absence of all foreign matter. We may take* $\lambda = 6 \times 10^{-5}$ *cm,* $\mu - 1 = .0003$*; whence from (eq. 14) we obtain as the distance x, equal to 1/h, which light must travel in order to undergo attenuation in the ratio e : 1,*
>
> $$x = 4.4 \times 10^{13} \times n$$
>
> *The completion of the calculation requires the value of n.*
>
> *Unfortunately this number—according to Avogadro's law* ***the same for all gases****—can hardly be regarded as known. Maxwell estimates the number of molecules under standard conditions as* 19×10^{18} *per* cm^3*. If we use this value of n, we find*
>
> $$x = 8.3 \times 10^{6} \text{ cm} = 83 \text{ kilometres},$$
>
> *as the distance through which light must pass through air at atmospheric pressure before its intensity is reduced in the ratio of 2.7 : 1."*

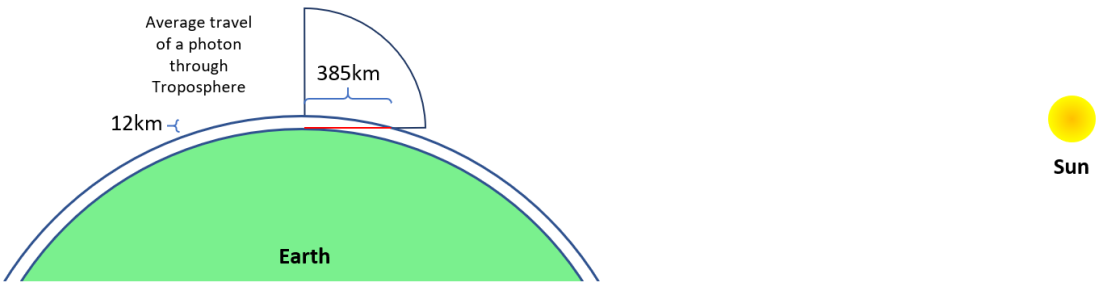
Rayleigh, 1899

As Raleigh makes clear in the above paper, both the phase of photons is shifted, accounting for diffraction, and the **intensity of photon energy is reduced in proportion to the inverse of *e* (Euler's number), or to 36.8% of its original over a distance of 83km**.

A reduction in intensity of the energy of photons occurs for all wavelengths, for example, substituting 700nm, the generally accepted beginning of the infrared spectrum, in Raleigh's calculations above using modern calculations, we find that the distance through which a **700nm photon** must pass through air (with a refractive index calculated at 25°C, 1atm, 400ppm CO_2 , and 90% humidity) before its intensity is reduced to 36.8% of its original value as

$$x = 201 \text{ kilometres}$$

From the diagram below, the average distance a photon travels through the Troposphere, where 80% of the mass of the air is, is



(385km + 12km)/2, or **198.5km**

Dividing by 99% of that air being N_2 and O_2, we get

198.5/99% = 200.55, rounding to **201 kilometres**,

which is approximately equal to our earlier calculation for the distance through which a photon is reduced to 36.8% of its original energy. Since only 80% of the mass of air 1 atmosphere of pressure is in this region, and the albedo of the Earth reduces it by another 29%, the total thermal energy attenuation by **N_2 and O_2** is

80% * (1-29%) * (1-36.8%) = 35.9%

Roughly 36% of a photon's energy is absorbed by N_2 and O_2 each daytime as the Sun passes overhead, using the 700nm wavelength at the beginning of the IR spectrum, for example.

This attenuation of thermal energy by air molecules explains why you can look directly at the Sun as it rises or sets, even though the distance of the Sun relative to the Earth has negligible reduction (being so far away), by reducing thermal energy, when you could not look at it directly at noon.

To bring Rayleigh's work into the 21st century, it has been postulated that scattering follows quantum theory where an entangled state of an excited atom and an incident photon is formed during the scattering. The current theory holds that a photon is never completely absorbed by the atom because of entanglement—the probability amplitudes of the excited atomic state oscillate with the frequency of the incident photon, thus explaining how a photon can transfer only a part of its energy. This is consistent with our explanation here. See also Quantum theory of Rayleigh scattering.

3. Photon Momentum Transfer Analysis

We will now show how this energy is absorbed by the atmosphere by transfer of momentum to gas molecules, including N_2 and O_2, by increasing their velocity.

The magnitude of the momentum of a photon is

$$p = hf/c = h/\lambda$$

where h = 6.63E-34, c is the speed of light, and the wavelength λ we will use again as an example **700nm**, where wave energy is the highest, yet any IR wavelength will do for demonstration of the invalidity of the Greenhouse Gas theory.

$$p_{ph} = 9.47E\text{-}29 \qquad \text{kgf m/s}$$

after converting units. Thus, the momentum of an infrared photon of 700nm wavelength is the above value. We know that photons do not have a mass, but they have a wavelength and a momentum, generally travelling at near the speed of light.

From the atomic number of N_2, we calculate the mass of a single molecule as

$$4.65E\text{-}26 \text{ kg}$$

We can calculate the root-mean-square (average) velocity of an N_2 gas molecule from the temperature of gas using an earlier equation, using $R = Nk_b$ where R is the ideal gas constant:

$$v_{rms} = (3RT/m)^{1/2}$$

for a T of 25° C, converted to Kelvin, we determine that

$$v = 23.0359 \text{ m/s}$$

now we can calculate the momentum for a single N_2 molecule as

$$p_{n2} = 1.07108E\text{-}24 \text{ kgf m/s}$$

we can see that p_{ph} is much smaller than p_{n2}, as only 0.0088%, but **we should not wrongly assume** that a photon's momentum is too small to affect a molecule's velocity, as other researchers have,

> *"The momentum of **atmospheric photons** is too small to allow any significant portion of their energy to go directly into translational kinetic energy of the molecules that absorb them."*
>
> Infrared radiation and planetary temperature, Raymond T. Pierrehumbert, Louis Block Professor in Geophysical Sciences, University of Chicago

We have already seen that in 83 km of atmospheric travel (at STP), a photon will be reduced to ~36.8% of its energy, as explained above by Rayleigh, irrespective of the type of molecule of gas.

We should remember that p_{n2} above is only the momentum of one photon, affecting one molecule, and that as more and more photons impact a given molecule over time, that over all the molecules, the temperature can vary considerably, all storing thermal energy. **Atmospheric photons** travel with the same momentum as those in space.

Continuing our derivation, the above momentum of the photon's effect on the N_2 molecule, we can compare the N_2 momentum at two different temperatures, separated by 1° C

1.07108E-21 Momentum of 1 N_2 molecule at **25° C**

1.07288E-21 Momentum of 1 N_2 molecule at **26° C**

The difference between N_2 molecule momentums of 1° C temperature difference is

1.79561E-24 kgf m/s

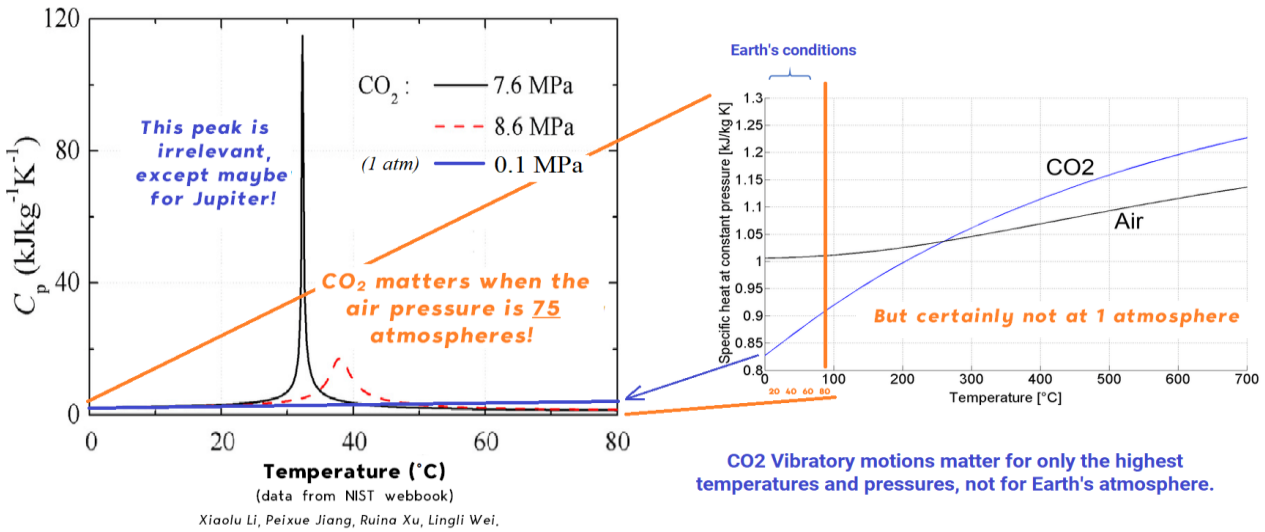
Which is 0.005% as the percentage effect one 700nm IR photon can have on the temperature of a molecule of N_2. Thus, we can calculate the temperature effect of one photon on an N_2 molecule as

0.000053° C to change its velocity by 36.8 m/second

per 700nm infrared photon per N_2 molecule. This means that photons can change molecular temperatures of all gases in the atmosphere, whether those photons originate in space, or from the Earth's centre or surface. N_2 and O_2 are the primary gases absorbing and radiating energy, not the so-called "greenhouse gases". It may not transfer all of the photon's energy, depending upon, for instance, the angle of the impact, or some other factor reducing energy transfer through momentum.

Given that about $5x10^{24}$ photons hit the Earth in a square meter every second, there is a lot of potential heating of the N_2 and O_2 molecules in 99% of the atmosphere. Some photons only graze the molecules they encounter, in which case the scattering is termed "elastic", but for the most part, air does not warm as much at a location when the Sun is setting because the photons have lost their thermal energy, having to travel through greater distances of atmosphere, in spite being of negligible different distance relative to the Sun. All the molecules participate in this attenuation of energy equally, in proportion to their atmospheric concentration.

In other words, the "greenhouse effect" or "Greenhouse Gas theory" as it is variously known is invalid. Photons do affect CO_2 and CH_4, for instance, by causing their molecules to vibrate in more degrees of freedom than simpler diatomic molecules N_2 and O_2, but this manner of energy absorption is relevant only when pressures are about 75-times Earth's atmospheric pressure, as shown in the chart below:



Compared with the far greater method of absorption of photon momentum as increased velocity, vibrations are not even a consideration for CO_2, as most of the thermal energy absorbed by the atmosphere is done by scattering, which again is not contingent upon the wavelength or the type of molecule.

4. Thermal Energy Analysis and Climate Science Principles

CO_2, N_2 and O_2 have a similar magnitude *specific heat capacity*, which is "the amount of heat per unit mass required to raise the temperature by 1°K", from this site, for example. Another, more relevant

definition is **the amount of thermal energy that is *stored* by a gas when it is raised 1°K.** The actual values for the 3 gases are shown below, from this source:

Specific Heat Capacity		c_p kJ/(kg °K)
Air		1.010
CO2	(lower)	0.844
N2		1.040
O2		0.919
Water vapour		1.864

The specific heat capacity (at constant pressure) of CO_2 is actually slightly lower than N_2 or O_2, which means CO_2 stores less energy for a given change in air temperature (confirming that the increased degrees of freedom of the tri-atomic molecule does not result in an increase of the amount of energy CO_2 can store). **Increasing the concentration of CO_2 in the atmosphere thus reduces the amount of energy it can store, making it *less* greenhouse-like than N_2 or O_2.**

The following are some additional Climate Science Principles from predominant environmental as well as human-induced chemical reactions that involve CO_2 and consequently influence the climate as well as being fundamental to life on the planet.

Premise #A

Because CO_2 is only 0.04% of the atmosphere, and it absorbs less thermal energy than either O_2 or N_2, which make up 99% or nearly 10,000 times the CO_2 concentration, any

Increases in atmospheric CO_2 concentration reduce the amount of thermal energy that can be stored in the atmosphere,

although only slightly. Importantly, and at odds with the prevailing "Greenhouse Gas" theory, CO_2 makes Earth's atmosphere *less* like a greenhouse, not more. In a warming world, a higher CO_2 concentration in the atmosphere would tend to allow the air to cool faster during and after the Sun set, when it can no longer heat the gases in the air.

Premise #B

CO_2 in the atmosphere is absorbed in ocean water in a reversible equation operating along Le Chatelier's principle, maintaining a solubility dependent upon water temperature, with a greater solubility in ocean water with cooler temperature.

$$CO_2\ (g) + H_2O(l) <=> H_2CO_3\ (aq) + Heat$$

This reaction is exothermic, and occurs with an increase in atmospheric concentration of CO_2, warming the ocean water as the concentration of CO_2 in the water increases. This consequently reduces the solubility of CO_2 in the water, thus increasing CO_2 in the air, until an equilibrium is reached.

Increases in CO_2 concentration in the oceans warm them, reducing the overall solubility of CO_2 in the ocean water, as a negative feedback.

Thus, rises in atmospheric CO_2 increase the concentration of CO_2 in the ocean upper surface waters, which warms them in the exothermic H_2CO_3 reaction, which reduces the CO_2 concentration to some new equilibrium state.

Heat exits warmer ocean waters via conduction at the ocean surface-atmosphere boundary, rising upwards through convection to radiate into space, day and night.

Premise #C

CO_2 is a feedstock in the photosynthetic chemical equation:

$$6CO_2 + 6H_2O + \text{Sunlight energy} ---> C_6H_{12}O_6 + 6O_2$$

This equation is endothermic—it absorbs solar energy and turns it into carbonaceous (organic) plant life and the O_2 that animals breathe. CO_2 is a feedstock at the basis of the food-chain, and of all life on the planet, without which there would be no humans.

Increases in CO_2 concentration in the atmosphere increase photosynthetic reactions, decreasing atmospheric temperatures.

The net decrease in air temperatures depends upon seasonal growth rates and land use.

Premise #D

Aquatic plants and phytoplankton in ocean waters additionally reduce the concentration of ocean CO_2 in the presence of sunlight, which is an endothermic reaction as in Premise #C, cooling ocean waters to counteract the warming effect of Premise #B, again as a negative feedback consequence of a greater CO_2 concentration. The warming waters also increase the uptake of CO_2 by aquatic plants because of higher growth rates. Additionally, ocean blooms have seasons just as land plants, and the seasons are extended because

"increasing water temperature due to global warming changes the start and end timing of the blooms"

Water temperature drives phytoplankton blooms in coastal waters, 2019

Higher CO_2 in the air causes higher CO_2 in the oceans, which warms them, reducing their CO_2, which cools them, but increasing the plant growth, which cools them.

Increased atmospheric CO_2 concentrations warm ocean waters but this warming is counteracted with greater plant and phytoplankton growth.

As the CO_2 in the ocean waters is about 90ppm, or 0.009%, including the effects of the various negative feedbacks on thermal energy storage in ocean waters is minimal.

Premise #E

Hydrocarbon fuel combustion is the primary means that humans increase global temperatures. Clarifying, the general chemical equation for combustion of hydrocarbon fuels is:

$$C_xH_y + zO2 \dashrightarrow xCO_2 + y/2\ H_2O + \text{heat inefficiency} + \text{energy}$$

where the energy is motion, goods and services production, resource extraction, food production, communications, construction, heat or cooling, or some form of potential energy storage, later used to produce heat, etc.

CO_2 increases in the atmosphere are a *result* of human combustion processes, not a *cause* of warming.

The combustion reaction produces heat energy, and *that* warms the planet, not the CO_2 per se in this reaction. In addition, nuclear fuel reactions produce heat used in the prior examples of human activity.

Natural sources of heat are geothermal energy, from gravity- or nuclear-driven reactions, climatic friction, tidal energy, as well as cosmic radiation and of course the primary source of the Earth's energy and driver of the climate, the Sun.

Premise #F

Because terrestrial photosynthesis is endothermic, while reversible carbonic reactions are exothermic yet countered by aquatic endothermic photosynthesis,

CO_2 has a net cooling effect on the planet.

The primary consequence of higher CO_2 concentration in the atmosphere is increases in global plant and phytoplankton growth, cooling the air by using solar energy that would otherwise heat Earth, and any increases in temperature are as a consequence of higher CO_2 concentration more rapidly radiated to space in an atmosphere that stores less thermal energy.

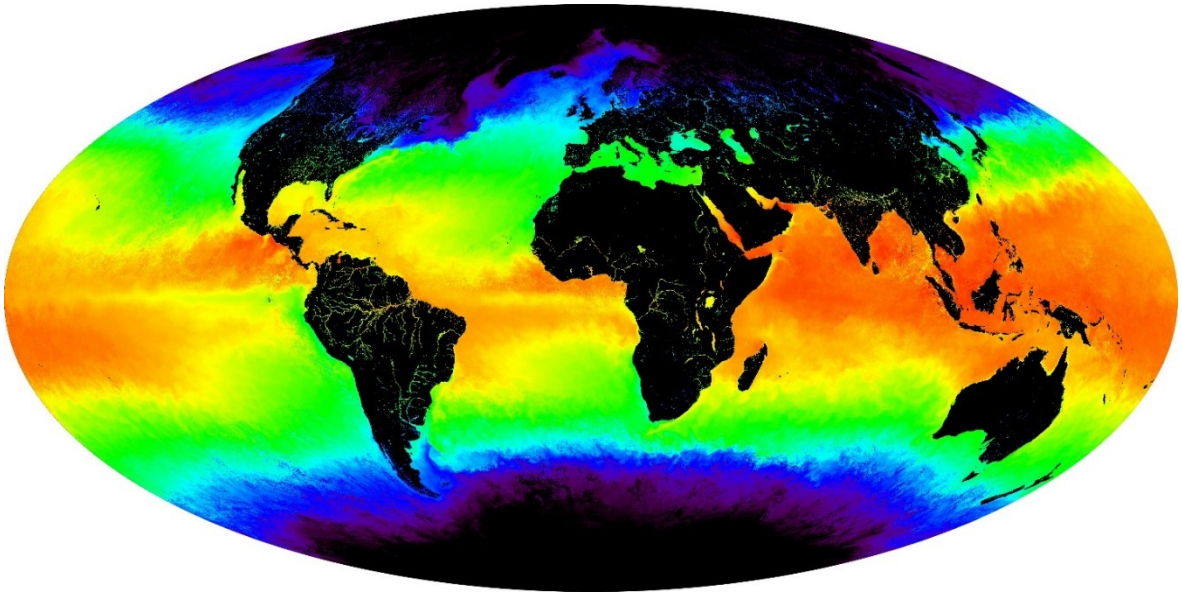
5. Conclusion Disproving Climate Change Argument

From the premises above, we can conclude that

Additions of CO_2 gas have a net cooling effect on the planet, rather than a warming one.

But the concentration of CO_2 is so low compared to the primary gases N_2 and O_2, it has very little relative thermal storage capacity, storing paltry thermal energy in comparison.

The primary way in which CO_2 cools the planet is through photosynthesis, an endothermic reaction at the basis of all life on Earth. Carbonic exothermic reactions heat oceans, until equilibrium is reached, yet this too is offset by greater aquatic plant and phytoplankton photosynthesis. As shown in the NASA image below, most of the ocean will benefit from higher plant/phytoplankton growth rates with warmer temperatures, assuming temperature rises from some source other than CO_2.



Thus, the Climate Change/Global Warming theory is false—humans do not warm the planet by adding CO_2 to the atmosphere. Humanity warms the air through the many and various forms of combustion occurring in our societies, but that heat rapidly dissipates each night, just as a warm room cools in the winter once a heater is turned off.

The amount of thermal energy consumed by photosynthesis can be calculated directly using plant biomass measurements, and this will be done on a future paper at www.climatesciencejournal.com , as well as a net thermal storage energy balance with carbonic reactions in ocean waters.

Furthermore, when the Earth cools more quickly, oceans absorb more CO_2 because the solubility of CO_2 in ocean water increases with cooler temperatures. Likewise, when the planet warms, oceans release CO_2, which then begins to cool the planet as above, forming a negative feedback loop that helps keep the atmosphere at a more stable temperature, making life possible.

6. Evidence in Support of Theoretical Challenge

A new, general theory and challenge to an older, invalid paradigm requires evidence. The broader the generalizations, the more applicability, and therefore the more important the evidence.

Just as Raleigh reflected on the scattering of light in air, as demonstrated from the setting Sun, so too does the present new perspective rely upon easily observable but important evidence that may not previously have adequately been put into scientific perspective.

There are two forms of evidence, first, eclipses of the Sun, and second, the temperature drops that invariably coincide with the arrival of night-time or cloud cover.

We know from many observations that during a solar eclipse, air temperatures drop quickly in the path of the eclipse 5° to 20° C within ~30 minutes, and rise quickly as the eclipse passes. This demonstrates that solar energy is maintaining air temperatures, and without it, temperatures quickly drop. **This rapid warming of the air above the Earth's surface supports the knowledge that N_2 and O_2 are absorbing solar energy**, as they comprise 99% of the atmosphere, and it is impractical that less than 1% of the atmosphere could be responsible for warming the greater part of it in such a short time. Thermal energy transfer studies should eventually prove this more precisely.

The cooling of N_2 and O_2 similarly shows that these gases are radiating thermal energy into space in the infrared wavelengths, in spite of their lacking level changes in spectral analysis. Instead, the velocity of the molecules of these gases is declining, most likely due to their rise against gravity towards space, cooling them, accounting for lower temperatures with a rise in altitude, but thermal energy must radiate at some point. Theoretically-derived Ritz wavelengths, 94 for N_2 and 105 for O_2 support this thesis, where wavenumbers are derived from level energies with the Ritz principle:

> *"the wavenumber σ of the emitted or absorbed photon is equal to the difference between the upper and lower energies Ek and Ei,"*
>
> $$\sigma = Ek - Ei.$$
>
> *"The Ritz wavelength λ in vacuum is equal to the inverse of σ. If σ is in units of cm−1, and λ is in nanometers,*
>
> $$\lambda \text{ vac [nm]} = 107/(\sigma \text{ [cm−1]}).$$
>
> *"Wavelengths in air are decreased by the refractive index of air."*
>
> NIST (National Institute of Standards and Technology)

Both N2 and O2 absorb and radiate thermal energy in the infrared wavelengths, **as all matter does**. More work verifying the nature and manner of this radiation is needed.

Similarly, when the Sun sets each night, temperatures quickly drop, sometimes as much as 30° C overnight, showing the need for continual absorption of solar radiation to keep air temperatures warm.

Importantly, Global Warming theory advocates are complaining predominantly about air temperatures, which vary substantially every day, and drop very quickly each evening. The idea that less than 1% of the air is responsible for retaining the heat of the 99% is, frankly, preposterous.

A broader, positive theory called the *Greenhouse Functionality Theory* will shortly be released that seeks to replace the prevailing yet invalid "Greenhouse Gas" Theory.

7. Some Peer Reviews *(anonymous to protect reviewers from ad hominem and retaliation)*

> *"You have found a promising approach to demonstrate successfully that the long-suspected culprits of global warming, e.g. CO2, CH4, are actually not!"*
>
> PhD, Physics
> Rutgers University, New Jersey
> B.A. Cornell University, New York

> *"…seems to be path-breaking research in the domain. The paper reads nice and the science involved is analogous and clear. This paper is a hallmark and would benefit the advances in science, government planning as well as policy makers for*

the next course of action. I congratulate you for this great work and thank for giving me an opportunity to read it and enlighten myself."

PhD, Atmospheric Sci and Meteorology, IISc
M.Sc., Geophysics, ISC
BSc., (Hons) Physics, Delhi U

"I have studied your paper during the weekend and I am impressed by your brilliant analysis and convincing argumentation. This looks like a very original thought process and one that does deserve broad dissemination."

B.Sc. (Hons) Mech. Eng.
DTU, Denmark
C.P. Eng. (Chartered Prof. Eng.)
Former Project Manager, CERN
Geneva, Switzerland

Notes

The above theoretical work was developed/discovered using the **Conceptual Model Theory of Human Understanding**, an historically distinct epistemological theory, specifically the new theory of **Validation**, which is an improved scientific method, all confirmed with commercial applications in AI software.