From: Brian Valentine <bgvalentine@verizon.net>
To: 'alan618034' <alan618034@earthlink.net>,'Pierre Latour' <SR2@msn.com>,'Bob Armstrong' <bob@cosy.com>,'Marc Morano-ClimateDepot.com' <Morano@ClimateDepot.com>
Subject: RE: AGWers , Show me the Physics! v1
Date: 07/18/2009 13:32:12

Attachment N1: image001.gif

"What can I put in an oven to make the oven hotter?" - Décolletage photos of Paris Hilton

Subject: Re: AGWers , Show me the Physics! v1

The question I ask myself is, "What can I put in an oven to make the oven hotter?"

To theoreticians this may seem a childish sort of inquiry, but to empirical me it encapsulates the whole matter of "radiative forcing." The initial condition is that of hot coils warming the air inside (principally nitrogen) by convective/conductive transfer (trace gases like CO2 included) and possibly by a small amount of radiative transfer to IR-sensitive gases that have not been otherwise excited. This is an obvious analog of the earth's surface heating the atmosphere.

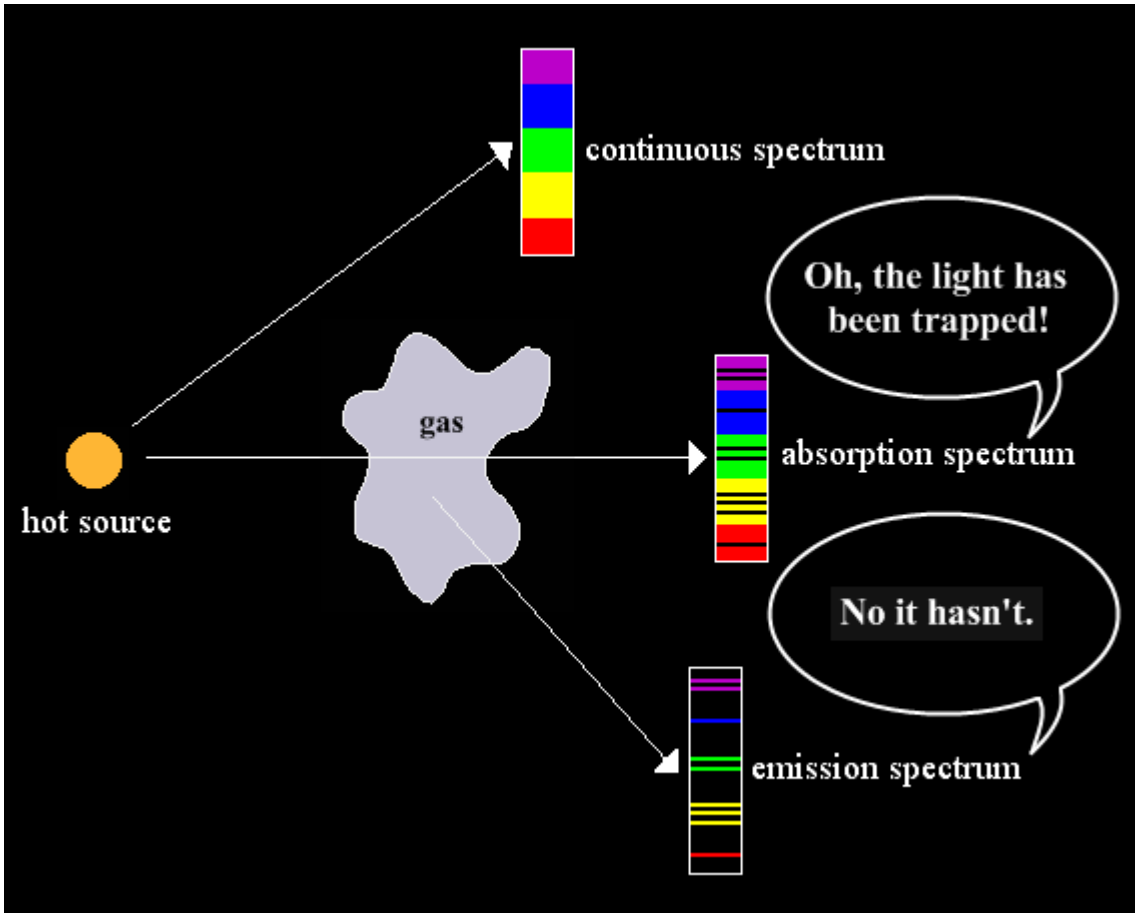
Now, the paradigm has it that adding IR-sensitive gases like water vapor or CO2 will enhance the radiative transfer of heat from the coils (surface) to the chamber (atmosphere) and that this effect reverberates, making not only the chamber warmer but the coils too. For the life of me, though, I can't imagine how.

As greenhouse operators know, for instance, water vapor REDUCES an enclosure's temperature. It's a simple matter of water molecules storing heat in latent form and making less sensible heat available to the surroundings. Indeed, greenhouse operators find that the benefit of mechanically removing WV from the system outweighs the cost of trying to heat it. Dry air is just easier to keep warm. So discount the water molecule as a heat promoter.

CO2 then? Well, as an IR-absorber it's pretty weak, intercepting maybe 8% of the radiant energy the oven is generating. Thus, if infrared absorption and emission is the mechanism that raises the chamber's temperature, wouldn't a full-spectrum turkey do better?

But you could roast that turkey till it's a charred cinder, making it a virtual blackbody, an IR-radiator to the nth degree... nothing will change. The turkey's radiation is just a response to what the oven coils are providing, and the oven's temperature stays basically the same, if now a little lower due to the extra mass being heated.

To cut to the chase, the originators of greenhouse theory confused radiative absorption with "blockage." IR-opacity merely denotes responsiveness, and responsiveness necessitates emission. Appearances to the contrary, an absorption line in spectroscopy doesn't signify "trapping," only radiative dispersal.



What's absorbed isn't TRANSMITTED (uninterrupted light passage) but is instead EMITTED (transformed to multiple paths). No energy is lost.

Certainly, as a heated air mass the atmosphere radiates, and this radiation can be observed from the ground below. But nothing in thermodynamics permits this so-called back-radiation to heat the very object that's heating it. The oven heats the turkey; the turkey doesn't heat the oven. In other words, the second law prevails. Of course when you turn the oven off (nighttime falls) the mass that's been heated will help sustain the chamber's temperature. But this pertains to the chamber's contents per se (the atmosphere at large) not to any special property of trace gases. The energy spent in heating a mass by day is partly paid back at night, that's all. But a net GAIN of thermal energy can't be found anywhere in this picture. In other words, then, the first law prevails.

By conceptual default, I bought into greenhouse theory when I started to research global warming. I soon learned from AGW skeptics, after all, that the dispute wasn't whether more CO2 would lead to warming but only by how much. So when Gerlich and Tscheuschner came along, I merely considered their ideas interesting. But as my research progressed I began to notice that the "negative feedbacks" proposed by AGW skeptics were becoming as outlandish as the "tipping points" of alarmists. Where was any solid evidence for either kind of effect? Was the theory under debate even valid?

The answer is no. By reducing convective heat loss the originators of greenhouse theory observed higher temperatures inside their glass boxes. But they THOUGHT that they were reducing radiative heat loss because glass is a selective absorber, like CO2. Thus did a human misperception become a thundering law of nature: Restricting radiation induces a higher temperature — period. There are no brakes on this theory, however, no limits. And no formula to define it in any physics textbook. "With a radiative input of 1000 watts per square meter and an output of 50%, what temperature will a blackbody reach?" There SHOULD be an answer to such a basic question. Yet there isn't. The formula is missing from physics

textbooks because the phenomenon of radiative forcing does not exist.

Alan

----- Original Message -----

From: Pierre Latour

To: 'alan618034' ; 'Bob Armstrong' ; 'Marc Morano-ClimateDepot.com'

Cc: 'Joseph Bast' ; 'Dennis Avery' ; 'Howard Hayden' ; vanderleun@comcast.net ; Jsdaleo6331@aol.com ; 'Brian Valentine' ; peden@middlebury.net ; hans@ilovemycarbondioxide.com ; 'Bob Ashworth'

Sent: Friday, July 17, 2009 15:48

Subject: RE: AGWers , Show me the Physics! v1

Marc Morano,

Alan Siddons makes sense. Bob Armstrong is ok too. You want a little physics? http://climatedepot.com/

A star is a nearly perfect black body radiation emitter - absorber because it has an atomically uniform surface composition and temperature. Earth is far from a black body because it has a two phase atmosphere and highly nonuniform surface composition and temperature. Every planet's night - day side is hugely different from a black body.

Siddons also describes dynamic thermal effects. Heat transfer by conduction, convection and radiation across Earth's solid and liquid surface and through its two phase atmosphere, with a tremendous altitude pressure - temperature gradient, has very complex low high (daily) and low (millennia) frequency dynamics. While these are described by known physics equations (Navier-Stokes, Maxwell etc) they are intractable, unsolvable and of little help.

I have read Gerlich and Tscheuschner(1) with great admiration and respect. They say so.

Consider how one would use Siddons graph to calculate the "average" temperature of the Moon's entire surface with no atmosphere. Accounting for topography, craters, faults and transient shadows. Within 0.1C.

Control system engineering practice is to ensure mathematically the proposed system is well modeled, measurable, observable and controllable before attempting to design it. Prior to Kyoto 1997 I proved using anthropomorphic CO2 for Earth's thermostat is inadequately modeled, unmeasurable, unobservable and uncontrollable. So it won't work no matter what Kyoto, UN, Congress or G8 do. Setting setpoints

of control systems like thermostats always involves optimizing a risky tradeoff, which I developed a procedure to solve. The procedure in Waxman-Markey Cap and Trade won't work. Since no one has ever built a thermostat for climate of an entire planet, it would seem prudent for the designer to prove he know what he is doing, his system will work and it will do no harm, before proposing it. Particularly if he can't tell what good it will do and how much it will cost. Particularly with benign, nonpolluting green plant food. And particularly since some climate change is healthy and living creatures have capability to adapt and evolve. Particularly when there is no temperature or CO2 problem anyway.

And particularly when its leading designer proponent, at Oxford University on July 7, 2009 in Gore's 6min video. decried the 70% energy in coal "wasted" for generating electric power and called for "global governance" and massive government funded research to break the second law of thermodynamics embodied by the Sadi Carnot cycle since 1824. I took thermo in sophomore physics (2) at VaTech fall 1958; thermo in junior mechanical engineering (3) at VaTech in spring 1961 and thermo in graduate chemical engineering (4) at Purdue in 1964. Al Gore dropped out of Vanderbilt University Divinity School in 1972.

"No one has ever constructed a heat engine which does not throw away in its exhaust a relatively large fraction of the heat supplied to it, and it is safe to say that no one ever will. The impossibility of constructing an engine which, with no other outstanding changes, will convert a given amount of heat completely into mechanical work is a fundamental law of Nature, known as the second law of thermodynamics." (2, p 342).

In 1824 Sadi Carnot proved the maximum theoretical frictionless reversible efficiency is E = Wo/Qi = 1 - T2/T1, where Qi is total heat in, Wo is net work out, T2 is temperature of surroundings (air, cooling water), K and T1 is temperature of source (flame, steam), K. For example boiler efficiency for max work extracted from 538C superheated steam to 20C cooling water is 1 - 293/811 = 64%. Furnace efficiency for max work extracted from coal combustion to flue gas is about 60%. Turbine generator for max power from shaft input work is <80%. So max theoretical combined cycle efficiency is about 0.64*0.60*0.80 = 31%. Since 1824 engineers around the world have managed to get the actual efficiency close to 30%. Engineers gave you energy efficiency already; government won't create any more profitably.

And Gore claims "if we just put our minds to it, we can change all that" and overcome that evil second law. By the way the first law of thermo is energy can be neither created not destroyed, only transformed and conserved.

If you find a congressman reacting to those two little paragraphs with "I didn't take advanced math" tell him a) this is third grade arithmetic, b) if he cannot follow my 9 sentences, he cannot follow the 1428 pages of HR 2454 between 0300 and 1915 edt on Friday 26Jun09 and c) he has no business voting on $4 trillion budgets.

I can understand an incompetent or corrupt congressman would find this Pelosi argument persuasive: Trust me on this one. I remember loyalty. If you vote against Waxman-Markey, DNC will finance your opponent in 2010. Everyone knows majority rules in Congressional law making.

But I know the second law of thermodynamics rules renewable energy, Gore, Congress, Earth and the universe, since the big bang 13.7 billion years ago. Even if the polls say Gore is right. Gore is proud he won the popular vote in 2000; I say that reflects poorly on the majority of voters in 2000.

Gore wants billions for research to eliminate "energy waste". Ask physicist Chu, Secretary of DoE, if he is willing to accept $1 billion/year to do research to repeal the second law of thermo and develop a perpetual motion machine of the second kind. Ask him the return USA got for the millions spent by DoE since 1960 on Illinois, Pennsylvania and W Virginia coal combustion chemistry research.

Now Chicken Little is alarmed that Africa's soil doesn't contain as much carbon as N America soil. Its "degraded". And dirt has more carbon than air! Imagine that! Did he hear about high school chemistry calcium carbonate, sodium carbonate, potassium carbonate?

Con-artists trained in governance take a non problem and create one by scaring ignorant people! Now all we need is a perpetual motion machine. Lets offer $5 billion in grants to US universities and see if there are any takers.

I never imagined I would be writing such things obvious to most high school graduates in 1960: sunshine warms Earth, flora convert it and CO2 to carbohydrates and O2, which fauna combust with carbohydrates to make CO2 and heat. Climate changes. Very good.

I worked on NASA Apollo Command and Lunar Module digital autopilots and trajectory controls in 1967-69, before James Hansen did. They worked 40 years ago. I have built hundreds of successful thermostats.

1. Gerlich, Gerhard and Ralf D Tscheuschner, "Falsification Of The Atmospheric CO2 Greenhouse Effects Within The Frame Of Physics", International Journal of Modern Physics B, v23, n03, January 6, 2009, pp. 275-364. Free download at http://arxiv.org/PS_cache/arxiv/pdf/0707/0707.1161v4.pdf

2. Sears, Francis W, and Mark W Zemansky, "University Physics - Mechanics, Heat and Sound", Addison-Wesley, 1955.

3. Van Wylen, Gordon J, "Thermodynamics", John Wiley, 1960.

4. Tribus, Myron, "Thermostatics and Thermodynamics", Van Nostrand, 1961.

Pierre R Latour, PhD Chemical Process Control Systems Engineer, PE in CA & TX. Houston

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From: alan618034 [mailto:alan618034@earthlink.net]

Sent: Friday, July 17, 2009 12:28 PM
To: 'Bob Armstrong'; Marc Morano-ClimateDepot.com; 'Bob Armstrong'
Cc: 'Joseph Bast'; 'Dennis Avery'; 'Howard Hayden'; vanderleun@comcast.net; Jsdaleo6331@aol.com; 'Brian Valentine'; peden@middlebury.net; hans@ilovemycarbondioxide.com; 'Bob Ashworth'; 'Pierre Latour'; 'Joseph Bast'; 'Dennis Avery'; 'Howard Hayden'; vanderleun@comcast.net; Jsdaleo6331@aol.com; 'Brian Valentine'; peden@middlebury.net; hans@ilovemycarbondioxide.com; 'Bob Ashworth'; 'Pierre Latour'
Subject: Re: AGWers , Show me the Physics !

Even on the realist side, the discussion always sounds like the Sun is just another "forcing" whose effect is still open to question.

Well, because the actual physics involved opens a can of worms that neither side of the debate is willing to deal with. This is why both sides ignore Gerlich and Tscheuschner, for instance.

arguments as to why the [Stefan-Boltzmann] equation doesn't apply to earth (despite the fact that it clearly does).

Okay, here are a few. Assume that the method of dividing irradiance by four to obtain the temperature of a spherical, reflective Earth is valid (although it isn't). Thus, with 1366 watts per square meter available but with 0.7 absorption, you divide by 4 and get 239 W/m², which, via Stefan-Boltzmann, corresponds to about 255 Kelvin on a blackbody. The accepted method also assumes that this 255 K body will then emit 239 W/m². But Kirchhoff says it won't, for emissivity is equal to absorptivity. Given an absorptivity of 0.7, then, this semi-smooth body at 255 K will emit 167 W/m². Since it can't absorb as well as a blackbody, it can't emit as well either. In short, the accepted method of obtaining the Earth's base temperature incorporates absorptive but not emissive reduction. No body radiates as efficiently as a blackbody. This means that a graybody necessarily retains its heat longer than a blackbody, which thereby invalidates the initial 255 K assumption, that of dividing irradiance by four.

Moreover, whereas a blackbody radiates 100% of the thermal energy impinging on it, the maximum rate of heat loss, a real body has internal conductivity, allowing it to store heat. This too skews temperature estimates. The moon, for example, is considered an 89% blackbody. 1366 times 0.89 thus yields 1216 W/m², which corresponds to about 383 Kelvin on a blackbody, which should be close to its temperature at solar noon. Does the moon's surface actually reach that temperature, though? No. Because, as Apollo-era measurements indicated, the moon's regolith stores some of that heat and releases it later.

This chart shows the deviation between predicted and actual lunar surface temperatures throughout the moon's one-month "day".

The blue zone depicts the moon's thermal handicap, the orange its advantage.

A real body exposed to the sun doesn't heat up as fast as a blackbody because it's busy storing heat, conducting it internally into itself rather than fully radiating it. So it never gets as hot. But then it never gets as cold. Reaching its highest temperature in the solar afternoon, it begins to cool thereafter. And as it does so, the stored heat below now creeps toward the surface. In effect, a real body is a thermal battery. A blackbody has no such attributes. And this gives the moon a higher than predicted average temperature.

As a final point, let me add that EVERY planet is warmer than predicted by a divide-by-four blackbody formula.

1. As one can see by the yellow band on this chart, something happens to a planet's gases at pressures above a tenth of a bar. In every case, air that had been getting cooler as it approached the planet now becomes progressively warmer, irrespective of what it's made of -- hydrogen, helium, nitrogen, carbon dioxide... whatever.

2. Moreover, in every case it's apparent that air temperature would only keep rising if the planet itself (rake symbol) didn't get in the way. As its atmospheric pressure mounts, for instance, Jupiter grows far hotter than Venus.

3. Finally, see how the heat lines extend beyond the red circles? Each circle's position refers to the temperature assigned to that planet by the blackbody equation (see note). In every single case, then, even for Mars, the actual temperature exceeds the estimate, i.e., the scientifically predicted temperature for this planet.

Yet the theory of the greenhouse effect was concocted for the very purpose of explaining why the earth in particular is warmer than predicted.

Does the Stefan-Boltzmann equation apply to the Earth, then? No. There are too many other parameters (some perhaps unknown as yet) that compromise its applicability. But does this significant discrepancy bother so-called climate realists, let alone alarmists? No. In my view, both sides of the radiative forcing debate are chasing their tails, having never verified the initial assumptions of a theory they both endorse. As you say, Bob, show me the physics.

Alan Siddons

Source: NASA's Planetary Fact Sheets

Earth 254.3 Kelvin

Mars 210.1

Jupiter 110.0

Saturn 81.1

Titan 84.6 (my estimate based on its 0.22 albedo)

Uranus 58.2

Neptune 46.6

----- Original Message -----

From: Marc Morano-ClimateDepot.com

To: 'Bob Armstrong'

Cc: 'Joseph Bast' ; 'Dennis Avery' ; 'Howard Hayden' ; vanderleun@comcast.net ; alan618034@earthlink.net ; Jsdaleo6331@aol.com ; 'Brian Valentine' ; peden@middlebury.net ; hans@ilovemycarbondioxide.com ; 'Bob Ashworth' ; 'Pierre Latour'

Sent: Thursday, July 16, 2009 23:17

Subject: RE: AGWers , Show me the Physics !

Thanks Bob. I am copying a few others who may be interested. I appreciate the comments and I will take a look at your site.

From: Bob Armstrong [mailto:bob@cosy.com]
Sent: Thursday, July 16, 2009 8:51 PM
To: Marc Morano
Cc: Joseph Bast; Dennis Avery; Howard Hayden
Subject: AGWers , Show me the Physics !

Marc,

It was nice to be able to at least shake hands at the end of the WDC conference . I just was watching a program on network structures, 6 degrees of freedom stuff, on the Science channel . The great majority of paths go thru a small number of hubs. Apparently they have an equation for the statistics of the topology but they only flashed it for a moment.

Climate Depot has quickly become a very important hub. It is freqing them out. I've been spending too much time taking the battle to various blogs you headline. I just vastly upgraded my Forum to better use it as a blog on which to archive my posts some of which usefully flesh out various issues.

My particular talent is physics. I can't leave a question alone until I get to as fundamental understanding of it as I can. And that means math - which notates physics. But it has to be really simple for me to get my head around it. That means, let me understand the classical first. That's what defines the null hypothesis.

That fundamental theory is Gustav Kirchhoff's brilliant insight, 150 years ago this year, that the tendency for an object to emit radiation at a given temperature is identical to its tendency to absorb, combined with the ~120 year old Stefan-Boltzmann law that the power radiated by a body is proportional to its temperature raised to the 4th power. That's it. That's the whole thing. The rest is geometry.

The crudest application of this relationship predicts objects in our orbit will be about 1/21 the temperature of the Sun. And we are. In fact, the notion of a temperature "runaway" as claimed for Venus is provably nuts.

Oddly, so far as I can tell, this foundational physics seems ignored on both sides of the debate. When have you ever heard any classic, quantitative, confirmed statement of the relationship of our temperature, indeed, Mercury and Mars's also, to that of the Sun ? Even on the realist side, the discussion always sounds like the Sun is just another "forcing" whose effect is still open to question. I was astounded to hear Monckton say Stefan-Boltzmann was never even mentioned in the IPCC report.

So, I'm looking for some peer review. (Someone please pass this on to Willie Soon, I don't seem to have have his address. The basic relationship should be able to be found in a peri/aphelion effect of about 1% in the temperature record.)

I really want to extend the algorithm to handle full spectra so the quantitative effect of, eg, changes of saturation of CO2's lines, can be calculated.

But the Dow went up about 300 points while I've been writing this, and must turn to my fiduciary responsibilities.

I'd greatly appreciate feedback on my Planetary Temperature page, especially suggestions on points which need to be clarified, or arguments as to why the equation doesn't apply to earth (despite the fact that it clearly does).

Join the Forum and post any questions.

Thanks, Peace thru Freedom,

Bob Armstrong -- CoSy.com -- 719-337-2733

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