

From: alan618034 <alan618034@earthlink.net>
To: Marc Morano-ClimateDepot.com <Morano@ClimateDepot.com>, 'Bob Armstrong' <bob@cosy.com>
Subject: Re: AGWers , Show me the Physics !
Date: 07/17/2009 11:27:59

Attachment N1: [moon.gif](#)
Attachment N2: [all planets.gif](#)

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

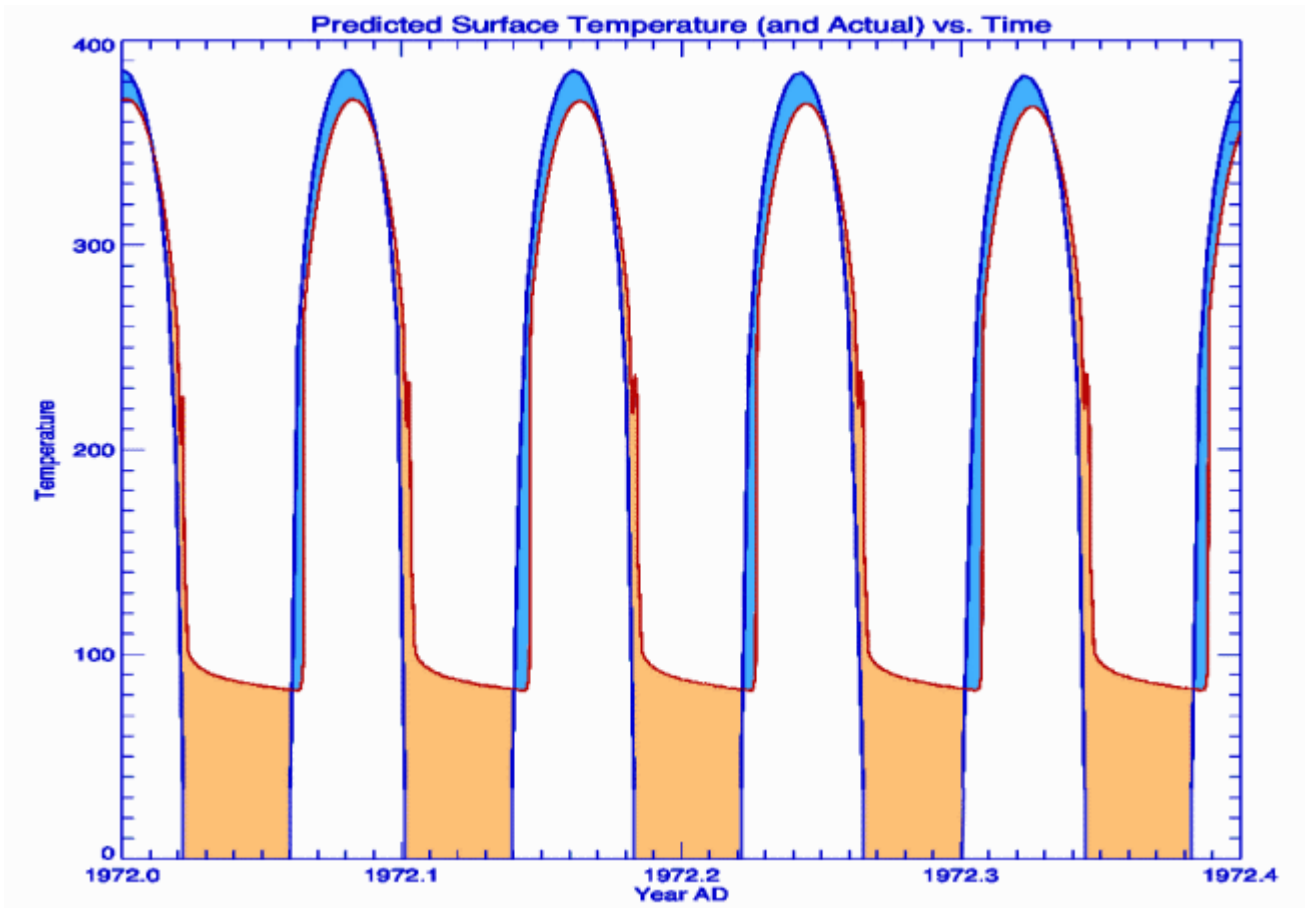
Well, because the actual physics involved opens a can of worms that neither side of the debate is willing to deal with. This is why both sides ignore Gerlich and Tschuschner, for instance.

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.

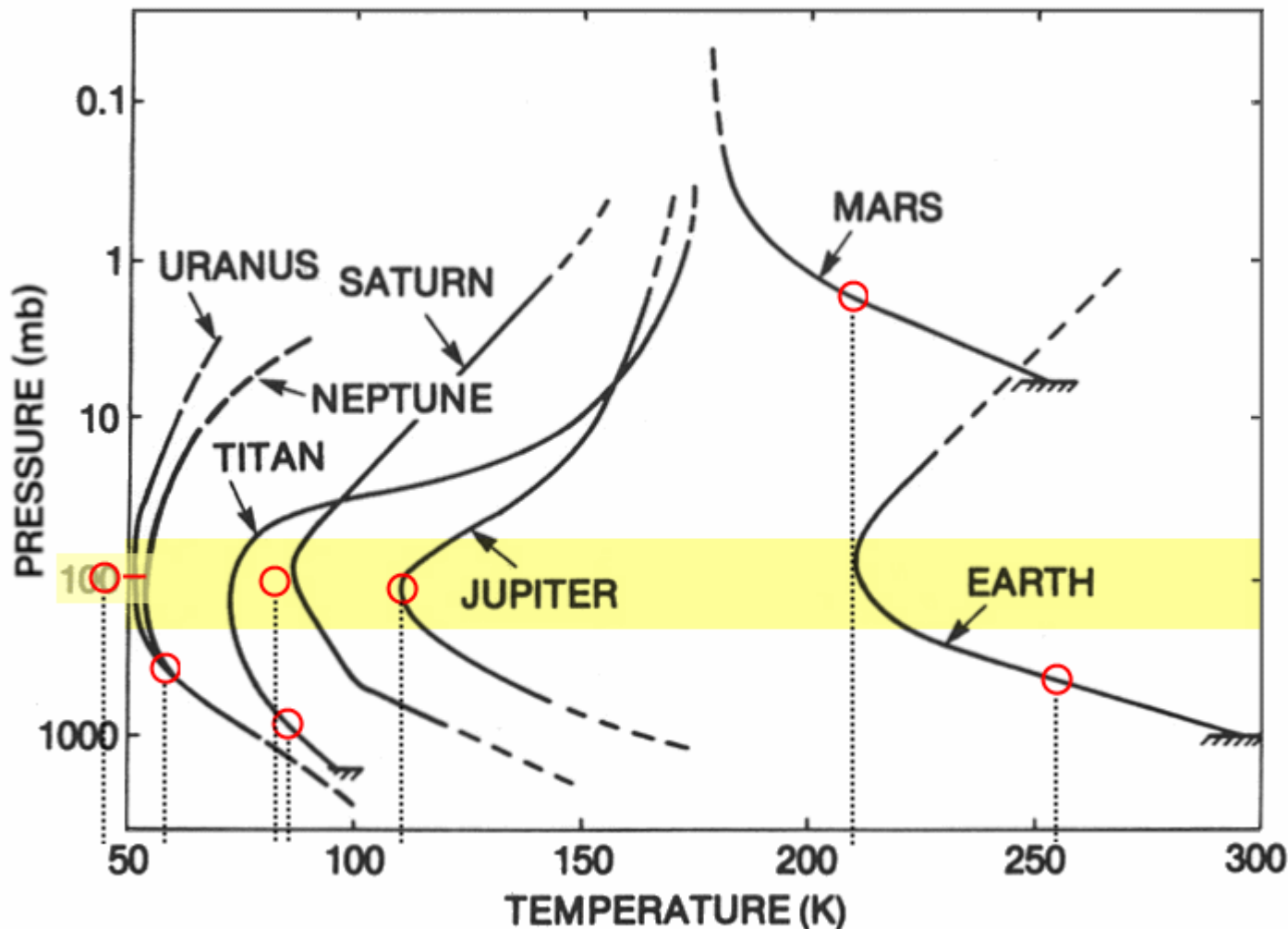
This chart shows the deviation between predicted and actual lunar surface temperatures throughout the moon's one-month "day".



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 (red 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](mailto: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@ilovemycarbon dioxide.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 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 ,

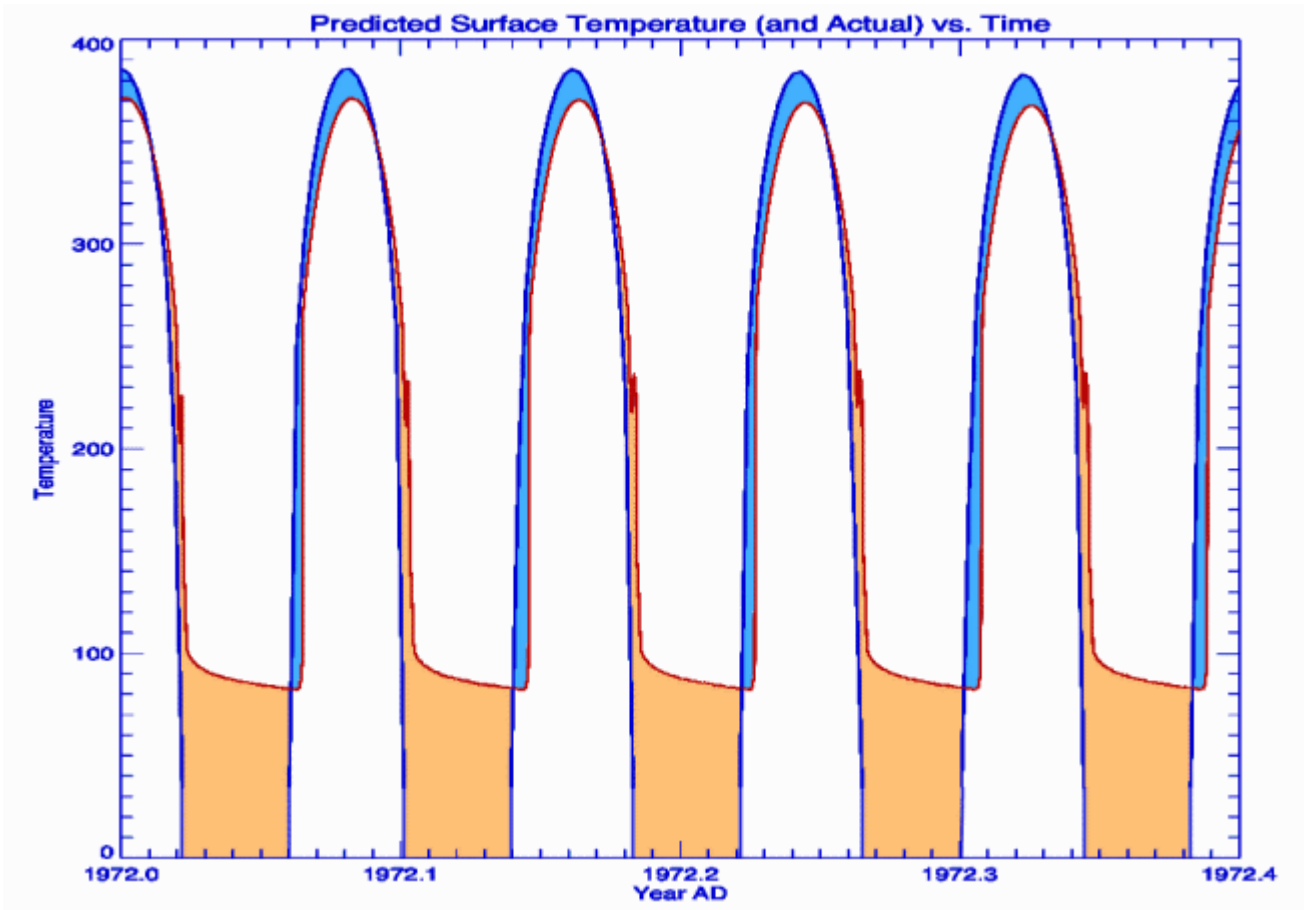
Peace thru Freedom ,

Bob Armstrong -- [CoSy.com](#) -- 719-337-2733

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[moon.gif](#)



all planets.gif

