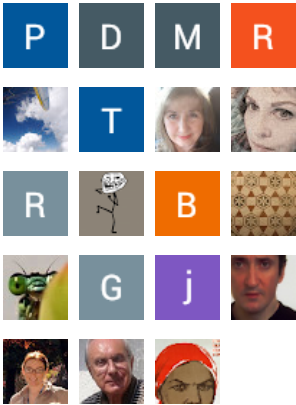


The Earth and Man: Setting the Stage

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Ph.D.



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MONDAY, NOVEMBER 22, 2010

Venus: No Greenhouse Effect

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The flip side of the entrenched incompetence in science today is that all it takes is scientific competence to make revolutionary discoveries, or fundamental corrections to current dogma. Being a competent physicist rather than an incompetent climate scientist (which 97% of them demonstrably are), I was able recently to post an [answer on yahoo.com](#) to a question about the greenhouse effect on Venus, an update to which I give here:

Surprisingly to most, there is no greenhouse effect at all, and you can prove it for yourself.

From the [temperature and pressure profiles for the Venusian atmosphere](#), you can confirm that, at the altitude where the pressure = 1000 millibars, which is the sea level pressure of Earth, the temperature of the Venusian atmosphere is 66°C = 339K.

This is much warmer than the temperature at the surface of the Earth (at pressure = 1000 millibars), which is about 15°C = 288K. HOWEVER

Venus is closer to the Sun, and gets proportionally more power from it. Earth is 93 million miles from the Sun, on average, while Venus is only 67.25 million. Since the intensity of the Sun's radiation decreases with distance from it as 1 over r-squared, Venus receives (93/67.25) squared, or 1.91 times the power per unit area that Earth receives, on average.

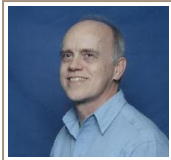
Since the radiating temperature of an isolated body in space varies as the fourth-root of the power incident upon it, by the Stefan-Boltzmann law, the radiating temperature of Venus should be the fourth-root of 1.91 (or the square-root of 93/67.25) = 1.176 times that of the Earth. Furthermore, since the atmospheric pressure varies as the temperature, the temperature at any given pressure level in the Venusian atmosphere should be 1.176 times the temperature at that same pressure level in the Earth atmosphere, INDEPENDENT OF THE DIFFERENT LEVELS OF INFRARED ABSORPTION in the two atmospheres. In particular, the averaged temperature at 1000 millibars on Earth is about 15°C = 288K, so the corresponding temperature on Venus, WITHOUT ANY GREENHOUSE EFFECT, should be 1.176 times that, or 339K. But this is just 66°C, the temperature we actually find there from the temperature and pressure profiles for Venus.

[Note: The derivation of the radiating temperature above is for absolute temperature, in degrees Kelvin (K), so the 1.176 factor relates the Kelvin temperatures, not the Celsius temperatures.]

So there is no greenhouse effect. You have just proved that climate science is utterly wrong to think otherwise. This is the scandal that so many "experts" in climate science, and all the

► 2009 (15)

About Me



HARRY DALE
HUFFMAN

Independent research physical scientist, author ("The End of the Mystery"), and discoverer of the astounding world design behind all the ancient mysteries. See [my lulu.com page](#) for more information about my work and original books. I also have books on Amazon.com: [Run to the End of the Mystery, Vol. 1](#), [Run to the End of the Mystery, Vol. 2](#), and [Ancient Messages: A Field Guide to the Design of the Earth](#)
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scientific authorities, will not face. Listen to the physicists that tell you there is no greenhouse effect; they know without having to go to the Venus data -- and I am one of them. The continuing incompetence on this vital point among so many scientists, for more than a century, is amazing, and tragic.

Here is a table more precisely comparing the temperatures at various pressures in Earth's atmosphere (the standard atmosphere) with the corresponding temperatures in Venus's atmosphere:

PRESSURE (millibars, mb)	T_Earth (K)	T_Venus	T_Venus/1.176	Error (K)
1,000	287.4	338.6	287.9	+0.5 ~ negligible
900	281.7	331.4	281.8	+0.1 " "
800	275.5	322.9	274.6	-0.9 " "
700	268.6	315.0	267.9	-0.7 " "
600	260.8	302.1	256.9	-3.9
500	251.9	291.4	247.8	-4.1
400	241.4	278.6	236.9	-4.5
300	228.6	262.9	223.6	-5.0
200	211.6	247.1	210.1	-1.5

(updated 12/02/10)

My uncertainty in finding T_Venus from the graphs is +/- 1.4 K, so any error less than about 1.2 K (in the last column) is negligible. I don't know why the comparison falters slightly between 600 and 300 mb, or why it improves suddenly at 200 mb (~60 km altitude), but the Venus cloud top is given as 58 km, between the 300 and 200 mb levels.

The Venus atmosphere is 96.5% carbon dioxide, and supposedly superheated due to a runaway greenhouse effect, yet that portion of it within the pressure bounds of the Earth atmosphere is remarkably like the Earth in temperature. This is student-level analysis, and could not have been neglected by climate scientists, if they were not rendered incompetent by their dogmatic belief in the greenhouse hypothesis. (Again, the overwhelming extent of fundamental incompetence exhibited by scientists today is the real underlying story.) This result also flies in the face of those who would say the clouds of Venus reflect much of the incident solar energy, and that therefore it cannot get 1.91 times the power per unit area received by the Earth -- the direct evidence presented here is that its atmosphere does, in fact, get that amount of power, remarkably closely. This in fact indicates that the Venusian atmosphere is heated mainly by incident infrared radiation from the Sun, which is not reflected but absorbed by Venus's clouds, rather than by warming first of the planetary surface. (It also indicates that the Earth atmosphere is substantially warmed the same way, during daylight hours, by direct solar infrared irradiation, and that the temperature profile, or lapse rate, for any planetary atmosphere is relatively oblivious to how the atmosphere is heated, whether from above or below.) This denies any possibility of a "greenhouse effect" on Venus (or on Earth), much less a "runaway" one. This has already been pointed out recently by physicists [Gerlich and Tschentschner](#), who have written succinctly, "...since the venusian atmosphere is opaque to visible light, the central assumption of the greenhouse hypotheses [sic] is not obeyed." Yet they are ridiculed by climate scientists, who thus behave like spoiled children who refuse to be chastised by their parents.

Update March 14, 2012: This analysis is so easy, the result so immediately amazing, and the interpretation just above so obvious to me, yet the opposition to accepting it so universal and so determined, that I was led to unconsciously accept, partially but nevertheless wrongly, the premise of incompetent critics, that my findings were invalid because I had not "corrected for albedo", or in other words had wrongly assumed the Earth and Venus atmospheres were blackbodies, absorbing all the radiation incident upon them. I inadvertently got caught up, over time, in claiming the Earth-plus-atmosphere system

behaves like a blackbody (although I never claimed it absorbs all the radiation incident upon it, as a blackbody is defined to do, and as the incompetent dismissers of my analysis have determinedly, dogmatically insisted). Although this has thoroughly hindered the acceptance of my analysis, my initial approach to the problem was in fact sound (even if too simple-minded for most), and my above, initial interpretation is quite correct, and in fact unavoidable, although it is not a complete statement. The complete interpretation, which I have stressed (as a logical fact) ever since, both in comments below this article, and on other internet sites, is that the two atmospheres must DIRECTLY absorb the SAME FRACTION of the incident solar radiation. For, supposing that both atmospheres do so absorb, and are solely warmed by, the same fraction (f), and given that the ratio of the two planets' distances from the Sun--Venus/Earth--is (A), the governing formula becomes, for the Earth and Venus atmospheres in turn

$$f \cdot S_0 = \sigma T_e^4$$

$$f \cdot \left(\frac{S_0}{A^2} \right) = \sigma T_v^4$$

and the temperature ratio is

$$\frac{T_v}{T_e} = \left(\frac{1}{A^2} \right)^{1/4} = \frac{1}{\sqrt{A}}$$

This result is independent of the fraction f absorbed, which is why naively approaching the problem as if f = 1 nevertheless gives, without the need to even consciously consider albedo beforehand, the amazingly clear result that the temperature ratio depends only--and amazingly, quite precisely--upon the ratio of the two planets' distances from the Sun. Any "expert", upon seeing this amazing result, should quickly have realized it means both atmospheres must absorb the same fraction of the incident solar radiation, and be warmed only by that fraction. So I apologize for not presenting the explicit equations above sooner, for it would have saved me stumbling into error later, and embarrassing my few defenders, in my "blackbody" defense of the original analysis--but I insist my critics have all been more incompetent than I in this matter, in refusing to even consider my correct interpretation, because of what they merely assumed was a fatal error. There was no physical error in my original analysis, because the temperature ratio I obtained was an empirical fact, and the absorbed power ratio I implied from that was a logical fact (simply stated, Venus's atmosphere DOES absorb 1.91 times the power that Earth's atmosphere does, as their temperature ratio shows--and that ratio is precisely that predicted simply from the ratio of their distances from the Sun). Since the two atmospheres DO, factually, absorb the same fraction of the solar radiation incident upon them, there was, in reality, no physical reason to extend the analysis by "correcting for albedo". But I seriously underestimated the level of determined ignorance--alias incompetence--of the "experts", and dropped part way down to their level for a time.

Another way to look at the Venus/Earth data is this:

Venus is 67.25 million miles from the Sun, the Earth, 93 million.

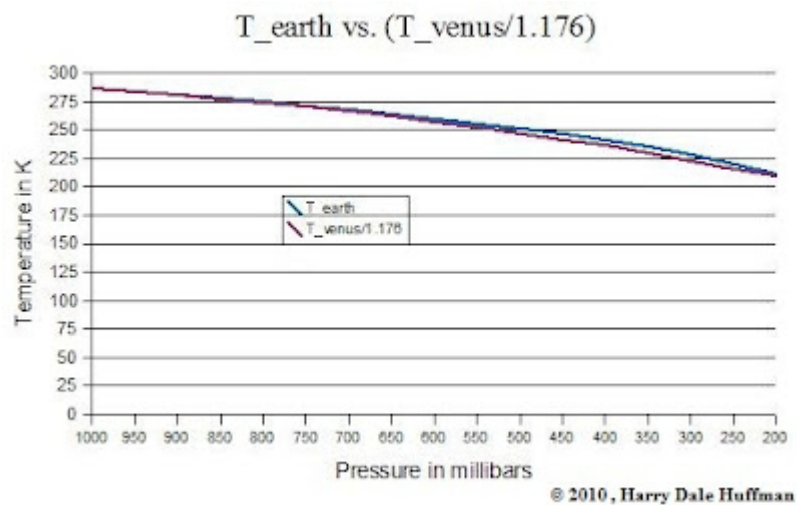
The radiating temperature of Venus should be 1.176 times that of the Earth.

Without ANY greenhouse effect as promulgated by the IPCC, at any given pressure within the range of the Earth atmosphere, the temperature of the Venus atmosphere should be 1.176 times that of the corresponding Earth atmosphere.

The facts:

at 1000 millibars (mb), $T_{\text{earth}}=287.4$ (K), $T_{\text{venus}}=338.6$, ratio=1.178
 at 900 mb, $T_{\text{earth}}=281.7$, $T_{\text{venus}}=331.4$, ratio=1.176
 at 800 mb, $T_{\text{earth}}=275.5$, $T_{\text{venus}}=322.9$, ratio=1.172
 at 700 mb, $T_{\text{earth}}=268.6$, $T_{\text{venus}}=315.0$, ratio=1.173
 at 600 mb, $T_{\text{earth}}=260.8$, $T_{\text{venus}}=302.1$, ratio=1.158
 at 500 mb, $T_{\text{earth}}=251.9$, $T_{\text{venus}}=291.4$, ratio=1.157
 at 400 mb, $T_{\text{earth}}=241.4$, $T_{\text{venus}}=278.6$, ratio=1.154
 at 300 mb, $T_{\text{earth}}=228.6$, $T_{\text{venus}}=262.9$, ratio=1.150
 at 200 mb, $T_{\text{earth}}=211.6$, $T_{\text{venus}}=247.1$, ratio=1.168
 (Venus temperatures are ± 1.4 K, Earth temp. are from std. atm)

The actual ratio overall is $1.165 \pm 0.015 = 0.991 \times 1.176$. It does not vary from the no-greenhouse theoretical value at any point by more than about 2%.



There is no sign whatever of a greenhouse effect on either planet. The fact that the temperature ratios are so close to that predicted **solely by their relative distances from the Sun** tells us that both atmospheres must be warmed, overall, essentially in the same way, by direct IR solar irradiation from above, not by surface emissions from below. Keeping it simple, the atmospheres must be like sponges, or empty bowls, with the same structure (hydrostatic lapse rate), filled with energy by the incident solar radiation to their capacity to hold that energy.

There is no greenhouse effect on Venus with 96.5% carbon dioxide, and none on the Earth with just a trace of carbon dioxide.

Posted by [Harry Dale Huffman](#) at 9:51 AM

Labels: [atmosphere](#) , [climate](#) , [earth](#) , [greenhouse](#) , [Venus](#)

212 comments:



Unknown January 24, 2011 at 2:16 PM

Mr. Huffman: Very interesting. How would it be if you turn it the other way around and go down to the surface of Venus? With more than 90 times the pressure of sea surface on earth, wouldn't this be considerably warmer than the actually 464 degrees Celsius?

[Reply](#)

**Harry Dale Huffman**January 25, 2011 at 4:42 AM

The primary point of this article is that we have to compare atmospheric temperatures at equal pressures in the two atmospheres, and when we do that we find the Venus atmospheric temperature is always just 17% higher than the corresponding (same pressure level) temperature in Earth's atmosphere -- and that essentially constant factor is due solely to the two planets' relative distances from the Sun, nothing else (in particular, not due to the great difference in the amount of carbon dioxide in the two atmospheres). There is no such comparison to be made with the surface temperature of Venus, precisely because the pressure there is far outside the range of Earth's atmospheric pressure. From the results of the comparison I have done, we can say that if Earth had much more atmosphere, so that its surface pressure was equal to Venus's surface pressure, then we would expect the 463C surface temperature of Venus to be 17% higher than the surface temperature of the Earth with that much atmosphere.

The precise factor is 1.176. Note that the Venus atmospheric temperature is actually slightly cooler than 1.176 times the Earth's, over part of the range of pressures compared here. As intimated in the article, this is likely due to thick clouds in that portion, with liquid water in them that would sequester enough heat energy to depress the temperature a few degrees from the precise 1.176 factor predicted by the distances from the Sun. Wherever the atmosphere is free of such water (presumably in the form of dilute sulfuric acid, as has been reported), that precise 1.176 factor should be closely followed, as I have reported here.

Reply**Brian H** March 9, 2011 at 12:28 AM

I like your idea, but...

Since you are using a multiple of Earth's temp as a comparison, aren't you thus including any GH effect on Earth as part of the basis? So in effect saying that if there is a GHE on Earth there is one on Venus, and vice versa?

Reply**Harry Dale Huffman**March 9, 2011 at 5:44 AM

Hello, Brian,

My analysis does not just pluck "a multiple of Earth's temperature" out of thin air. It investigates the simplest physical hypothesis. It calculates the expected Venus/Earth temperature ratio, over a broad range of Earth atmospheric pressures, if the only contributing factor is the two planets' mean distances from the Sun (their common power source), and finds that this minimal hypothesis is precisely confirmed by both planetary atmospheres. Any attempt to explain this confirmation by another, more complicated hypothesis, will involve unrealistic assumptions, and a monumentally unlikely coincidence of several supposed additional factors having the same effect as no additional factors at all. For example, in the analysis, not only does the amount of CO₂ not enter in (Earth has 0.04%, Venus a whopping 96.5%), but the albedo (from either cloud tops or the planetary surface) does not either (Venus has dense clouds that reflect much of the incident visible radiation, while Earth does not, and Earth's surface is 70% deep ocean, while Venus is solid crust). The real atmospheres don't care at all about these great differences in the two atmospheres and planetary surfaces, they only care, and quite precisely, about their distances from the Sun. So think of all the factors you can which might possibly affect the temperature, and then look again at the analysis, which shows they are not in fact effective overall.