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["Expected" to release methane](#) (Score:1, Insightful)

by [popo \(107611\)](#) [Alter Relationship](#)

One must note that environmental science is best at observation, and typically poor at prognostication.

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----- Reading [tarot](#) cards is good self-therapy.

○

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[Re:](#) (Score:3, Insightful)

by Anonymous Coward

One must note that environmental science is best at observation, and typically poor at prognostication.

One must note that slashdotters are best at making unsubstantiated assertions, and typically poor at well argued comments.

■

■

[Re:](#) (Score:3, Funny)

by [Artifakt \(700173\)](#) [FriendFriend of a Friend](#)

I'm incredibly lousy at making unsubstantiated assertions! Never made one, never will!
There, have I defended my comments enough?

--

Who is John Cabal?

■

■

[Re:](#) (Score:1)

by [Paradise Pete \(33184\)](#) [Friend of a Friend](#)

I'm incredibly lousy at making unsubstantiated assertions! Never made one, never will!

I see what you did there.

--

Any Slashdot headline ending in a question mark will be followed by half a dozen citations of Betteridge's law.

■

■

Only CO2 matters (Score:2)

by [ggpaully \(263626\)](#) [Alter Relationship](#)

Because excess CO2 has a long duration in the atmosphere compared to other greenhouse gasses, other emitted greenhouse gasses have relatively little effect on global warming. Peak global warming will be because of peak atmospheric CO2 mixing ratio (concentration).

See eg "Fossil fuel's future", <http://www.sciencemagazinedigi...>

Counter-intuitive in the case of methane.

--

Verbum caro factum

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■

Re: (Score:2)

by [Curunir_wolf \(588405\)](#) [FreakFriend of a Friend](#)

The 1976 US Standard Atmosphere document and database (which still remains the gold standard today and has not changed despite 39 years of greenhouse gas emissions) is an absolute goldmine of detailed information on the physical derivation of the standard atmospheric model and confirmatory observations, collected from satellite data that was not even available when Maxwell's equations were first derived. It provides overwhelming physical proof and overwhelming observational evidence that the Maxwell gravito

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I am a crackpot

■

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Re: (Score:2)

by [dywolf \(2673597\)](#) [Alter Relationship](#)

Yes you are a crackpot.

No, you dont have any clue what you are talking about.

To dismiss radiative heating and isntead hold that it is solely from phsyics and "gravity/pressure" is to say the sun does not warm the earth. IE that the energy from the sun striking the earth is either ignored by the earth or 100% re-radiated. both of these are impossible and violate thermodynamics.

It also completely ignores the numerous experiments showing the ability of various gases (or other materials reall) to absorb radiat

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If Obama cured cancer, they would blame him for putting doctors out of work.

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[Re:Only CO2 matters](#) (Score:2)

by [Jane Q. Public \(1010737\)](#) [Friend of a Friend](#) on 2014-12-10 10:37 ([#48565909](#))

t also completely ignores the numerous experiments showing the ability of various gases (or other materials reall) to absorb radiated energy. All matrials can absorb radiated energy. Some re-radiate better than others, some retain it better than others.

You are grossly oversimplifying the radiation physics of the situation.

Just one example: if your gas absorbs radiation, and becomes hotter, what happens to it? At the risk of oversimplifying things myself, it expands, and rises in the atmosphere. There, it radiates its heat out to space.

Simple radiative heating of an already-warmer surface by cooler gases is a physical impossibility. Further, it doesn't happen via conduction or convection because convection carries warm gases *AWAY* from the surface.

So while I may not accept the gravimetric theory of warming on its face, neither does *your explanation* explain "greenhouse" warming.

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Re:Only CO2 matters (Score:3)

by [khayman80 \(824400\)](#) on 2014-12-10 12:04
([#48566815](#)) [Homepage](#) [Journal](#)

... if your gas absorbs radiation, and becomes hotter, what happens to it? At the risk of oversimplifying things myself, it expands, and rises in the atmosphere. There, it radiates its heat out to space. ... [\[Jane Q. Public, 2014-12-10\]](#)

Without gases which absorb IR, your hot gas would have been able to radiate its heat out to space even without rising in the atmosphere. In that case, even the surface would be able to radiate its heat directly to space.

But in the presence of gases which absorb IR, the surface can't radiate directly to the frigid 2.7K cosmic microwave background radiation. That's because radiating gases have raised Earth's [effective radiating level](#) to ~7 km above sea level.

... Simple radiative heating of an already-warmer surface by cooler gases is a physical impossibility. ... [\[Jane Q. Public, 2014-12-10\]](#)

Nonsense. Without radiating gases, net radiative heat transfer happens directly between the surface and the 2.7K CMBR. Jane [seems to understand](#) that net radiative heat transfer is proportional to $(T_a^4 - T_b^4)$, where T_a is the surface temperature and T_b is the frigid 2.7K CMBR. Conservation of energy means that power in = power out through any boundary where nothing inside is changing, and a quick calculation yields an [equilibrium surface temperature](#) for Earth of -17C.

That's much colder than Earth's actual average surface temperature of +15C because net heat transfer to the frigid 2.7K CMBR is very rapid due to the fact that T_b is a tiny 2.7K. Very rapid net heat

transfer means an Earth without radiating gases in the atmosphere could lose heat very rapidly, which would make it very cold.

Adding radiating gases just raises the effective radiating level above the surface. Conservation of energy forces the effective radiating level to have that temperature of -17C, otherwise heat would be building up (or down) below that level, which would cause warming (or cooling).

But in the presence of radiating gases, the surface can't radiate directly to the frigid 2.7K CMBR. Instead, it radiates (and convects) to the effective radiating level. Net radiative heat transfer is proportional to $(T_a^4 - T_b^4)$, where T_a is the surface temperature and T_b is now the -17C effective radiating level. But this means $T_b = 256K$, which is **much larger** than 2.7K. Therefore net radiative heat transfer from the surface is much slower than without radiating gases. Reducing radiative heat transfer while keeping sunlight constant results in surface warming.

I've just described the radiative component, but I've [also described](#) the convective component, which doesn't alter the basic fact that adding radiating gases to an atmosphere raises the effective radiating level and warms the surface. That's because the Earth can't convect heat to the near-vacuum of space, it can only **radiate** heat away. That's why radiative heat transfer dominates Earth's top of the atmosphere energy balance.

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[Re:Only CO2 matters \(Score:2\)](#)

by [dywolf \(2673597\)](#) [Alter Relationship](#) on 2014-12-11 5:20 ([#48571673](#))

again you prove you do not know what you are talking about.
do you even understand what a greenhouse is?

do you even understand the atmosphere and its layers?

here's a hint: the uppermost layers are not the warmest layers. you're right it is more complex than you present it...and that complexity is why you are wrong.

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If Obama cured cancer, they would blame him for putting doctors out of work.

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When in doubt, mumble; when in trouble, delegate; when in charge, ponder. -- James H. Boren

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