Why our CO2 emissions do not increase atmosphere CO2 Pt. 2

Over 4000 people, including hundreds of scientists, read my article "Why our CO2 emissions do not increase Atmosphere CO2". As I write this (January 3, 2017), there are 112 comments.

One well-respected scientist wrote to me:

Your article is (in my opinion) the BEST commentary yet that I've seen on this topic. I cannot see any way to shorten it. Your analogies are fantastic.

This article brings the (atmospheric physicist) scientific level of understanding down to the level of a 6th-grade education.

Just science, facts. No politics, no hysteria, and no hype. I love it.

I appreciate that comment because that is my writing goal. However, I have a scientific goal as well. That is to prove the arguments to support alarmist Claim #1, namely, that "Human CO2 emissions caused all or most of the observed rise in atmospheric CO2," are wrong.

The discussion in the 112 comments shows I have proved by logic that their 4-step argument to prove Claim #1 is invalid. Also, I proved the arguments that use carbon isotopes to prove Claim #1 are wrong.

All alarmist arguments for Claim #1 include the classic mathematical error of having more unknowns than equations. Therefore …

There exists no scientific basis to claim that human CO2 caused all or most of the increase in atmospheric CO2.

The comments by one Icarus62 and my replies best illustrate the core of the debate:

Icarus62:

It couldn’t be simpler: We’ve emitted twice as much CO2 since the preindustrial as remains in the atmosphere today. Therefore, nature had been a net sink of CO2 from the atmosphere over this period and we’re responsible for 100% of the 120ppm rise. Agreed? It cannot possibly be otherwise.

Berry:

Dear Icarus62, Thank you again for your comment. “It could not be simpler,” said the Aztec priests. “We simply cut out beating hearts and roll heads down the temple steps … and it rains.” They all believed it.

What is missing? The scientific method and good physics are missing. You are using what Richard Feynman called Cargo Cult science.

Icarus62:

1. Anthropogenic sources have emitted ~2,000Gt of CO2 since the preindustrial.
2. Atmospheric concentration has risen by ~850Gt / 120ppm.
3. The remaining ~1150Gt is no longer in the atmosphere – it has been sequestered by the land and oceans.
4. Hence the land and oceans have been a net sink for atmospheric CO2 over this period, and 100% of the 120ppm rise in atmospheric CO2 is anthropogenic.

This proves your argument wrong. If you disagree, please let me know which of these four items you dispute, and why. Thanks…

Berry:

Dear Icarus62, Thank you for your comment because it is

directly on point. You have presented the key 4 steps of the standard argument that human CO2 caused 100% of the rise in atmospheric CO2.

They are the same 4 steps that I present and rebut in my article above. The 4 steps fail because of invalid wording in steps 3 and 4. The phrase “land AND oceans” should be “land OR oceans.” The fact that (land + oceans) is less than 0 does not prove (land is less than 0) AND (oceans is less than 0).

Land can be a net sink even while oceans can be a net source for atmospheric CO2. Therefore, step 4 is invalid.

The 4-step argument does not prove human CO2 drives atmospheric CO2. That is because there are other scenarios where oceans can drive atmospheric CO2, while still meeting all the constraints of steps 1-3 after the “and” in step 3 is changed to “or” as required by logic.

My Fig. 1 above is a scenario were land absorbs all the human CO2 while oceans absorb and much CO2 as they emit. In that scenario, atmospheric CO2 remains constant. Steps 1-3 (with the “or”) do not exclude this scenario.

A second scenario can be where land absorbs all human CO2 emissions while oceans add CO2 to the atmosphere. (Simply change the ocean input in Fig. 1 from 44 to 46.) Steps 1-3 (with the “or”) do not exclude this scenario.

As you can see, there are an infinite number of scenarios that prove the 4-step argument is wrong.

You are not the first to challenge me with this 4-step argument. Keith Pickering, writing for Peter Gleick and company, challenged me with the same 4 steps. Keith acknowledged that I would win if I could produce even one scenario that showed his argument wrong. I did and Keith provided no counter argument.

Icarus62:

Your comment is not a valid rebuttal. I can replace “the land and oceans” with “the natural world” and the logic is still the same – it’s immaterial how that 1150Gt of anthropogenic CO2 that is no longer in the atmosphere has been partitioned between land and oceans. The natural world (land + oceans) has been a net sink of CO2 from the atmosphere since the preindustrial and there is no scenario in which we can be responsible for less than 100% of the 120ppm rise in atmospheric CO2.

To take one of your scenarios as an example:

If the land had absorbed 2,000Gt CO2 since the preindustrial, while the oceans had added ~850Gt to the atmosphere, the net natural change would be -1150Gt, i.e. a net sink. 100% of the 120ppm rise in atmospheric CO2 would be due to us, because in the absence of our emissions, the natural world would have caused a decline to 130ppm, instead of the increase to 400ppm we have observed. Not a physically realistic scenario, but it does demonstrate why your argument is wrong.

Berry:

Dear Icarus62, Thank you again for your comment.

You make an invalid assumption. You assume the “natural world” does not adjust to human input of CO2. Only a very small adjustment by the “natural world” will easily compensate for all human CO2 emissions.

If humans add CO2 to the atmosphere, land will absorb more CO2 and oceans will reduce their CO2 transfer to the atmosphere. That is because transfer rates are controlled by partial pressures of CO2.

Nothing in the 4-step argument excludes that ocean temperature can control the rate of change of atmospheric CO2. Since the

4-step argument cannot exclude this alternative, the 4-step argument is NOT proof that human CO2 caused all the rise in atmospheric CO2.

Further, the 4-step argument does not exclude the Fig. 1 alternative that shows atmospheric CO2 can remain constant if atmospheric CO2 is at equilibrium with ocean temperature. In Fig. 1, the “natural world” is a net sink but atmospheric CO2 remains constant.

Remember, to be proof, the 4-step argument must exclude all possible scenarios where atmospheric CO2 can remain constant in the presence of human CO2 emissions. The 4-step argument does not accomplish that proof.

The 4-step argument is a case of having more unknowns than equations. For example, if there were an equation that proved land and oceans emissions would not adjust to human CO2 emissions, then that would be sufficient to be a proof. But there is no such equation. So, the 4-step argument is based on an invalid assumption.

Icarus62:

The ‘4-step argument’ explicitly states that the natural world has adjusted by absorbing around half of our CO2 emissions, thus becoming a net sink. Any scenario in which we’re not responsible for 100% of the rise in atmospheric CO2 is logically ruled out. I illustrated this with one of your scenarios above (land = -2000Gt, ocean = +850Gt, net natural change = -1150Gt CO2, thus 100% of the 120ppm increase in atmospheric CO2 is due to anthropogenic emissions, and none of it is due to nature).

Berry:

Dear Icarus62, the 4-step argument incorrectly assumes the natural world absorbs only enough human CO2 emissions to account for the excess in its argument. That is illogical

because it does not allow the natural world to absorb any more than this amount.

What physics would constrain the natural world to absorbing only enough human CO2 to support the unfounded alarmist hypothesis?

None! It is a hand-waving argument with no physical basis, and no support from the argument itself. If the natural world can absorb about half, the natural world can absorb all human CO2 emissions.

The 4-step argument assumes the natural world cannot absorb more CO2 than an amount specified in the assumption. And, lo and behold, the 4-step argument concludes its own assumption is correct. That is a perfect case of garbage in, garbage out. Sorry. That proves the 4-step argument is a religion and not a science.

The 4-step argument still has more unknowns than equations.

Maybe Icarus62 will return but my argument will prevail.

There exists no scientific basis to claim that human CO2 caused all or most of the increase in atmospheric CO2.

My article references Murry Salby’s videos and book. My lake analogy conveys the same correct physics that Salby puts into differential equations.

Alarmists claim Salby’s calculations do not “conserve carbon.” They are wrong. Salby’s calculations conserve carbon, just as my lake example conserves water.

Alarmists claim I needed to included ocean acidification, land and ocean absorption limits, etc., to refute their hypothesis. My response is as follows:

1. The alarmist hypothesis claims human CO2 causes all the observed rise in atmospheric CO2.

2. The alarmist hypothesis includes only data on human CO2 emissions and atmospheric CO2.
3. I showed their hypothesis fails by including all data in their hypothesis.
4. I do not need to include data that alarmists did not use in their hypothesis.

There is no end to the illogic of climate alarmists.

What if we could do an experiment to prove whether human CO2 increases atmospheric CO2?

We could stop all human CO2 emissions and see if atmospheric CO2 goes down. Fat chance of pulling off that experiment.

We could increase human CO2 emissions and see if atmospheric CO2 increased its slope – or rate of increase – as the alarmist hypothesis predicts.

Then:

• If atmospheric CO2 increases its slope, the alarmists win.
• If atmospheric CO2 does not increase its slope, the alarmists lose.

Well, we did that experiment. It is at the end of my article. Here it is again.

After 2002, human CO2 emissions increased its slope by three times. At the end of 2012, human CO2 emissions were three times where they would have been if we continued “business as usual.”

Atmospheric CO2 scaled did not change its slope.

The alarmist hypothesis made an incorrect prediction. Therefore, the alarmist hypothesis is wrong.

Human CO2 emissions do not significantly increase atmospheric CO2. As the alarmists like to say, “the science is settled.”

Soon-to-be President Trump is correct. Our CO2 emissions do not cause global warming or climate change. We do not need to restrict our CO2 emissions.