

Carbon Dioxide – The Gas of Life

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STORY AT-A-GLANCE

- › Carbon dioxide (CO₂) is commonly mischaracterized as a harmful waste product of respiration and is falsely blamed for disrupting the planetary climate
- › CO₂ is an essential gas necessary for life. Moreover, its impact on Earth's temperatures is negligible, and will remain negligible even if the current concentration in the atmosphere were to double. A 100% increase of CO₂, from 400 ppm to 800 ppm, would decrease radiation into space by just 1.1%, resulting in a 0.7 degree C increase of the average earth temperature
- › A 0.7 degree C difference means there's no climate emergency, and no matter what we do to reduce CO₂ emissions, it's not going to impact global temperatures. To fabricate an emergency where there is none, it is assumed that massive positive feedbacks are involved. However, most natural feedbacks are negative, not positive, so isn't it likely the 0.7 degree C increase is an overestimation to begin with
- › There's no single temperature of the Earth. It varies by location and altitude. For every kilometer of altitude, you have an average cooling of 6.6 degrees C
- › Higher CO₂ levels will green the planet, making it more hospitable to plant life. The more CO₂ there is, the better plants and trees grow. CO₂ also reduces the water needs of plants, reducing the risks associated with droughts

The video above, "CO₂, The Gas of Life," features a lecture given at the Summit Old Guard Meeting in New Jersey, October 3, 2023, by William Happer, Ph.D., Professor

Emeritus of physics at Princeton University and former scientific adviser to the Bush and Trump administrations.

The topic: carbon dioxide (CO₂), commonly mischaracterized as a harmful waste product of respiration and a pollutant that is disrupting the planetary climate. As explained by Happer in this lecture, CO₂ is actually an essential gas necessary for life. Moreover, its impact on Earth's temperatures is negligible, and will remain negligible even if the current concentration in the atmosphere were to double.

CO₂ Is Not a Pollutant

At present, the CO₂ concentration in the atmosphere at a few thousand feet of elevation is around 430 parts per million (ppm). Closer to the ground, concentrations vary widely, both by location and time of day. This is because ground-level readings are impacted by photosynthesis and the respiration of insects and the like.

In the room where Happer was giving his lecture, the CO₂ reading was 1,800 ppm – the result of having a large group of people breathing in a closed space. Air conditioning systems have CO₂ meters that turn on fans to bring outdoor air inside when levels get too high.

The question of what is too high is an important one, considering The Great Resettlers are pushing a green agenda that demands the dismantling of energy infrastructure and farming in the name of stopping climate change, which quite obviously threatens our quality of life and food supply. Ultimately, it may threaten human existence altogether.

The fact of the matter is that CO₂ is not the “bad guy” it's made out to be, and the “net zero” agenda is wholly inappropriate if maintaining life on Earth is part of the equation.

“CO₂ is a very essential and natural part of life,” Happer says. “It is the gas of life. We're made of carbon after all, mostly carbon, and we breathe out a lot of CO₂ a day just by living. Each of us breathes out about 2 pounds of CO₂ a day. Multiply that by 8 billion people and 365 days a year, and just [by] living, people are a non-negligible part of the CO₂ budget of the Earth.”

Nevertheless, we are living through a crusade against so-called pollutant CO₂. People talk about carbon pollution. [But] every one of us is polluting Earth by breathing, [so] if you want to stop polluting ... apparently God wants us to commit suicide ...

We're doing all sorts of crazy things because of this alleged pollutant ... more and more beautiful meadows are being covered with black solar panels. It doesn't work very well; it doesn't work at all at night. It doesn't work on cloudy days. It doesn't work terribly well in the middle of the winter because of the angle of the sun.

But nevertheless we're doing it. We're being misled into climate hysteria, and if you haven't read this book, I highly recommend it. It was published first in 1841, called 'Extraordinary Popular Delusions and the Madness of Crowds.' It's as relevant today as it was then ...

I'm a physicist. I'm proud to say that no one could call me a climate scientist, but I know a lot about climate and I was a coauthor of one of the first books on the effects of carbon dioxide 41 years ago. This was a study done by the Jason Group which I was a member of. I was chairman for a while and it had really good people there."

Long-Term Impact of Increasing Atmospheric CO₂

The key question when it comes to global warming is, how much do you warm the Earth if you double the atmospheric CO₂ concentration? This is called the climate sensitivity question. The GUESS is that doubling CO₂ would result in a 3-degree centigrade rise in the global temperature.

"It was not based on any hard calculations," Happer says. "It was because of group-think. That's what everybody else thought, and so that's what we thought. Now, in my defense, one of the reasons I didn't pay much attention to this [is because] I was working on something at this time that I thought was much more

important. So, let me tell you about that, so you get a feeling for why I think I'm qualified to pontificate about this subject.

It was the beginning of the Strategic Defense Initiative, of Star Wars ... President Reagan ... wanted some way to defend the United States so that we didn't have to have this mass suicide pact, and among other things we considered using high-powered lasers to burn up incoming missiles ...

But here's the problem. If you take the 1 megawatt laser on the ground and you send it toward the missile, by the time it gets to the missile, the beam – instead of focusing all the power on the missile – breaks up into hundreds of sub beams – speckles – and this was something that was well-known to astronomers. You have the same problem when you're looking at distant stars and galaxies.

Astronomers knew how to fix this ... If you can measure how much this wave is bent, then you can bounce it off a mirror bent in the opposite direction, and when the wave bounces up it's absolutely flat. That's called adaptive optics and it works beautifully. Then, when you focus the corrected beam, you get a single spot instead of hundreds of [beams].

The trouble with that is that if you look at the night sky, there are only four or five stars that are bright enough to have enough photons to do the measurement of the distortion of the wave. So, we had a classified meeting in the summer of 1982. There were a number of Air Force officers there who explained the problem. By chance, I knew how to solve it.

You can make an artificial star anywhere in the sky by shining a laser tuned to the sodium frequency onto the layer of sodium above our heads, at 90 to 100 kilometers.”

While the Air Force was initially dubious about there being a sodium layer in the atmosphere, they did eventually build the sodium laser proposed by Happer, and if you go to any ground-based telescope today, you'll usually see one or two of them. Anyway,

that story was simply to impress you with the fact that Happer knows what he's talking about when it comes to atmospheric constituents and their related phenomena.

CO₂ Has No Discernible Impact on Earth Temperatures

According to the climate alarmists, rising CO₂ will result in global warming that will threaten all life on earth. In actuality, however, CO₂ "is a very puny tool to do anything to the climate," Happer says.

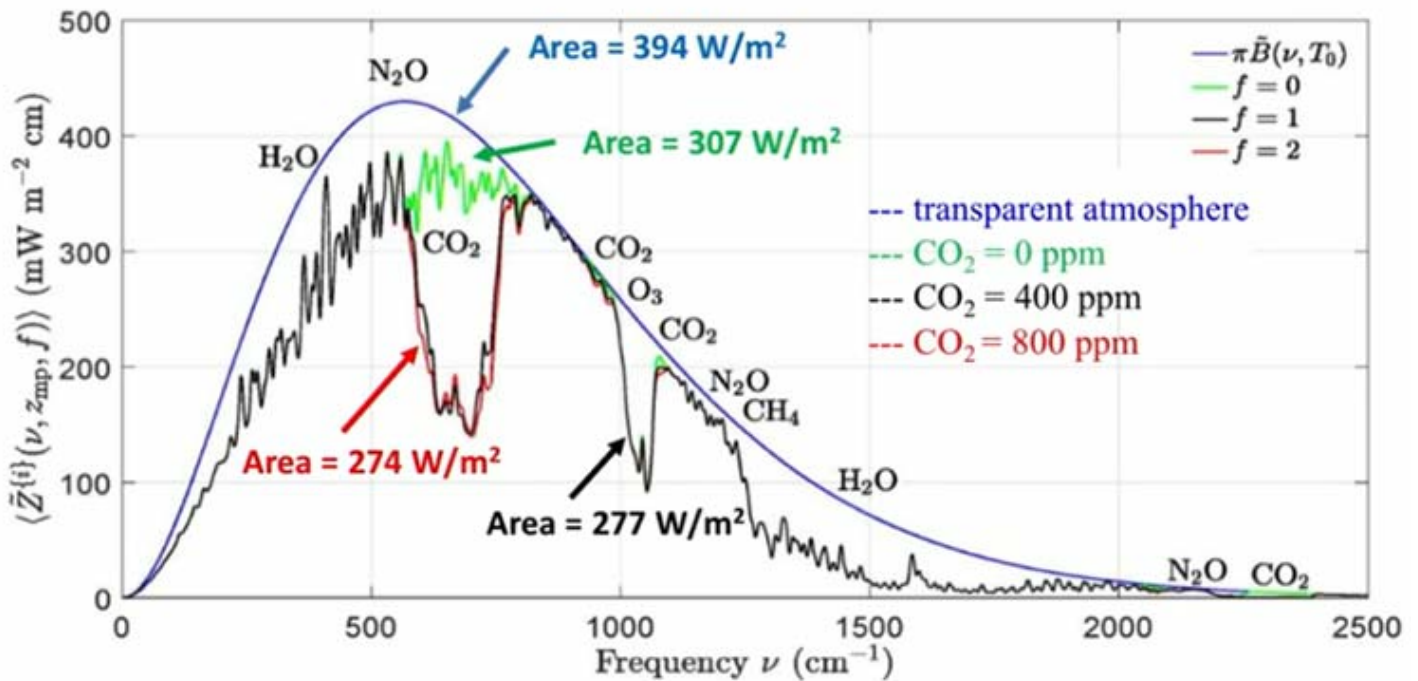
Keep in mind that there's no single temperature on the Earth. It varies by location and altitude. For every kilometer of altitude, you have an average cooling of 6.6 degrees C. This is known as the lapse rate. That cooling continues up to the troposphere, where it stops.

The cooling is due to the fact that warm air rises and cool air descends. "It's the convection that sets that rapid drop of temperatures — 6-and-a-half degrees per kilometer," Happer says. He then explains the following graph, which details the thermal radiation to space from the Earth, assuming a surface temperature of 15.5 degrees C. The greenhouse gases is the area beneath the jagged black curve.

According to Happer, this is only 70% of what it would be without greenhouse gases, which is shown as the smooth blue curve, because as the sun heats the earth, greenhouse gases — mostly water vapor — impede cooling.

The most important part of this graph is the red jagged line, shown here with a red arrow pointing to it. That red line shows the effect that a doubling (a 100% increase) of CO₂ would have on the surface temperature of Earth. As you can see, it's negligible. It decreases radiation into space by just 1.1%.

Earth's surface temperature, $T = 60\text{ F}$, \rightarrow 16 F without greenhouse gases



As noted by Happer:

“Let that sink in. We’re far from doubling [CO₂] today. It’ll take a long time, [and] it only causes a 1% change. So, CO₂ is a very poor greenhouse gas. It’s not an efficient greenhouse gas.”

If you remove ALL CO₂, you end up with the green jagged curve. As you can see, the green and black jagged lines run parallel with the exception of one spot. There’s a huge effect if you go from zero CO₂ to 400 ppm (green arrow). But it’s again negligible when you go from 400 ppm to 800 ppm (black arrow). As explained by Happer:

“You get all of the effect in the first little bit of added CO₂ ... So, it’s really true that doubling CO₂ only causes a 1% decrease of radiation. The IPCC [Intergovernmental Panel on Climate Change] gets the same answer so this is not really controversial, although they will never show you the curve or tell you that it’s 1%. That would interfere with the narrative ...

So, this is radiation to space. How do you change that into a temperature? They're worried that we'll get intolerable warming of the surface of the Earth where we live, or other parts of the atmosphere.

Here again it's important to do the first order calculation ... and it says that the warming from doubling CO₂ is ... less than one degree ... 0.7 [degree] C. Very small. You really can't feel that."

Why, Then, the Alarm Over Rising CO₂?

Needless to say, this is a huge problem for the climate science community, because a 0.7 degree C difference means there's no climate emergency, and no matter what we do to reduce CO₂ emissions, it's not going to impact the climate.

So, to fabricate an emergency where there really is none, the IPCC "assumes enormous positive feedbacks," Happer says. Because CO₂ is not a potent greenhouse gas, the tiny direct warming caused by it is amplified by factors of anywhere from four to six to make it seem like it has a discernible impact.

"I like to say it's affirmative action for CO₂," Happer says. "It's not very good at warming but if you assume lots of feedback, you can keep the money coming in." The problem with that is that most who have a background in physical chemistry and physics know that most natural feedbacks are negative, not positive.

“The 0.7 degree C of warming you get when you double the CO₂ is probably an overestimate, because there are probably negative feedbacks operating in this very complicated climate system that we live in.” ~ William Happer, Ph.D.

This is known as the Chatelier Principle, named after the French chemist who first discovered that “when a simple system in thermodynamic equilibrium is subjected to a

change in concentration, temperature, volume or pressure ... the system changes to a new equilibrium and ... the change partly counteracts the applied change.”

So, the 0.7 degree C of warming you get when you double the CO₂ is “probably an overestimate,” Happer says, “because there are probably negative feedbacks operating in this very complicated climate system that we live in. The atmosphere, the oceans, everything is nonlinear.”

The key take-home from all this is that whether we’re at 400 ppm of CO₂ or 800 ppm doesn’t matter when it comes to impacting the temperature of the earth. In short, the climate hysteria is just that. It’s not based on any real threat. Only if we were able to get to absolute zero CO₂ would there be a change, but doing so also means we’d exterminate all living things on the planet. It’s nothing short of a suicide agenda.

More CO₂ Will Green the Planet

As explained by Happer, more CO₂ will green the planet, making it more hospitable to plant life. The more CO₂ there is, the better plants and trees grow, so if we want lush forests and bountiful harvests, cutting CO₂ is the last thing we’d want to do.

“All plants grow better with more CO₂ [in the air],” he says. “Plants are really starved [of] CO₂ today. We know plants need many essential nutrients. They need nitrogen, phosphorus, potassium; most important of all they need water. But they also need CO₂, and like many of the other nutrients, CO₂ today is in short supply.”

CO₂ benefits plants by reducing their water needs, hence less risk from drought. Higher CO₂ levels also reduce harmful photorespiration. According to Happer, C3-type plants lose about 25% of their photosynthesis potential due to increased photorespiration. For more in-depth information about the role of CO₂ in plant growth and photosynthesis, please view the video. This discussion begins around the 40-minute mark.

Lies, Ignorance, Stupidity or Something Else?

In closing, Happer makes an effort to explain what's driving the climate hysteria:

"In spite of incontrovertible arguments that there is no climate emergency – CO₂ is good for the Earth – the campaign to banish CO₂, 'net zero,' has been very successful. So, how can that be? I'm really out of my depth here because now I'm talking about human nature. I'm really good with instruments and with solving differential equations but I'm not very good at understanding human beings.

But here are some of the drivers: noble lies, political lies, ignorance, stupidity, greed. Noble lies goes back to Plato who discusses it in 'The Republic.' 'In politics, a noble lie is a myth or untruth, often, but not invariably of a religious nature, knowingly propagated by an elite to maintain social harmony or to advance an agenda.'

And here there's a clear agenda. If you could somehow unite mankind to fight some external threat, for example CO₂ pollution, then we won't fight each other. There won't be wars. So, I think many sincere people have latched on to the CO₂ narrative partly for that reason. You can actually read about it in the early writings of the Club of Rome.

Then there are political lies. This is one my favorite H.L. Menken quotes: 'The whole aim of practical politics is to keep the populace alarmed (and hence clamorous to be led to safety) by menacing it with an endless series of hobgoblins, all of them imaginary.'

Ignorance, of course, is widespread, and largely based on incomplete knowledge or a flawed understanding of the facts. And what of stupidity? Dietrich Bonhoeffer, one of the few German clergymen who opposed Hitler and eventually paid for his public dissent with his life, once wrote about human stupidity:

"Against stupidity we have no defense. Neither protest nor force can touch it. Reasoning is of no use. Facts that contradict personal prejudices can simply be

disbelieved – indeed, the fool can counter by criticizing them, and if they are undeniable, they can just be pushed aside as trivial exceptions.

So the fool, as distinct from the scoundrel, is completely self-satisfied. In fact, they can easily become dangerous, as it does not take much to make them aggressive. For that reason, greater caution is called for than with a malicious one.”

Happer himself has experienced the danger of opposing stupidity. “I regularly get phone calls threatening me, my wife and children with death,” he says. “So, what kind of movement is this?” Lastly, greed. A.S. Pushkin once said, “If there should happen to be a trough, there will be pigs.” And climate science is currently where the big bucks are – provided your work furthers the global warming narrative and the need for net zero emissions.

Whatever the drivers are, responsible people everywhere need to push back against the false climate change narrative and the net zero agenda, as it will accomplish nothing in terms of normalizing temperatures, but will rapidly erode quality of life and the sustainability of food production, and shift wealth into the hands of the few.