

There is no Climate Emergency COP25, Madrid, Spain 2019

By William Happer

Cyrus Fogg Brackett Professor Emeritus of Physics
Princeton University

I want to take this opportunity to thank the sponsors of our meeting today for giving me and my wife, Barbara an opportunity to visit the storied city of Madrid. Alas, we are wasting our time discussing a non-existent climate emergency. How much further can alarmist propaganda about climate be pushed? Global warming, global weirding, climate crisis, climate emergency, what next? Sooner or later enough people will recognize the phoniness of this bizarre environmental cult and bring it to an end.

Democrat Senator
Mazie Hirono of
Hawaii (Nov. 12,2019)

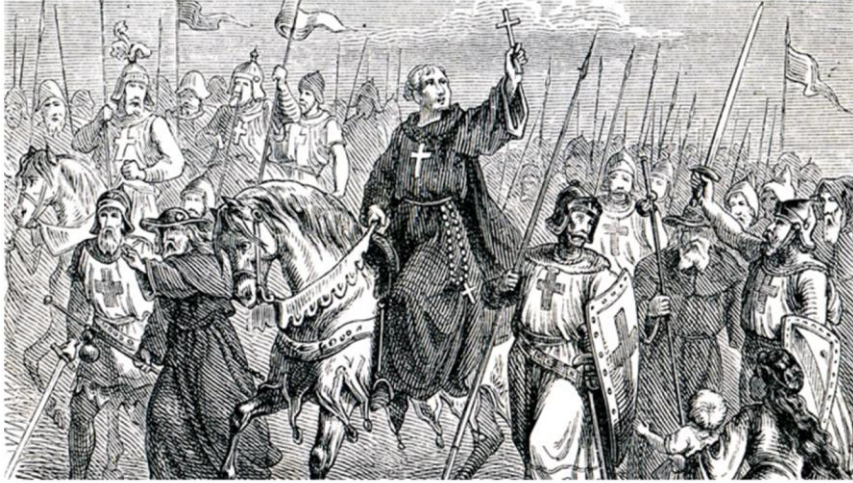
The Age of Faith is back!



“Believe in climate change as though it’s a religion, it’s not a science”

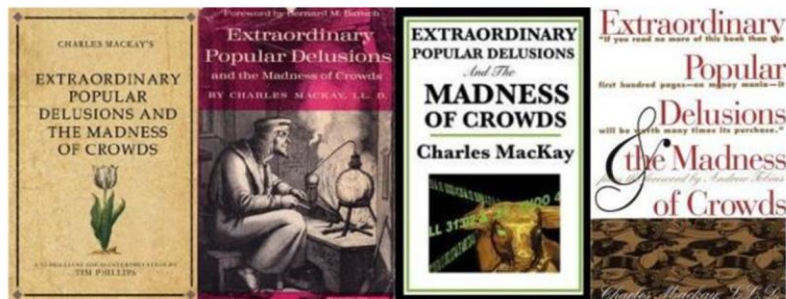
We should be grateful to US Senator Hirono of the Hawaii for stating clearly that climate is a religion for her, and presumably for many others. I have no problem with those who want to sign up to the new climate religion. But for a United States Senator to tell American citizens to “believe in climate change as though it is a religion,” gives me pause. The pious Senator should not forget the first amendment to the US Constitution. It is short enough that I will read it in its entirety: “Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.”

**Crusade against the “pollutant” CO₂
Save the planet! Deus vult!**



The current campaign against CO₂ and other greenhouse gases has all the trappings of a fanatical religious crusade. We must save the planet from the evil “pollutant,” CO₂. Deus vult – God wills it! Crusades have always ended badly, bringing discredit to religion and hardship and death to multitudes. A few cynical opportunists always profit at the expense of many sincere but deluded followers.

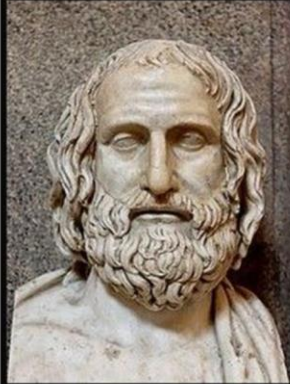
The World is being misled into Climate Hysteria, a contemporary
“Extraordinary Popular Delusion and the Madness of Crowds”



In 1841, the Scottish journalist, Charles MacKay, published the first edition of his classic book, “Extraordinary Popular Delusions and the Madness of Crowds.” If a revised edition of MacKay’s book should come out in the year 2100, the climate delusion would be one of its new chapters. If you have not read MacKay’s book, please do so. A few lines from the introductory paragraph give the flavor:

“In reading the history of nations, we find that, like individuals, they have their whims and their peculiarities; their seasons of excitement and recklessness, when they care not what they do. We find that whole communities suddenly fix their minds upon one object, and go mad in its pursuit; that millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly, more captivating than the first. “

Quos Deus vult perdere, prius dementat.



Whom the gods would destroy, they first make
mad.

(Euripides)

izquotes.com

The current frenzy over climate is nothing new in human affairs. The ancient civilizations of Greece and Rome were well aware of MacKay's observation that "Men, it has been well said, think in herds; it will be seen that they go mad in herds, while they only recover their senses slowly, and one by one."

As the quotes on this slide illustrate, the ancients often blamed God or the gods for inducing collective human madness: "whom the gods would destroy they first make mad." Today, a significant fraction of our fellow has gone mad over climate. But there is no need to blame Zeus and his fellow immortals on Mt. Olympus. Group think, scientific illiteracy, virtue-signaling, the lust for power and wealth, and other human weaknesses are sufficient to explain what is happenin.

Like other popular delusions, the climate delusion will eventually collapse, because Mother Nature is oblivious to COP25, or to declarations of climate emergencies by parliaments or prime ministers. I hope I will live to sanity restored to discussions of climate.

**Real Air Pollution in Shanghai.
If you can see it, it's not
 CO_2 , N_2O or CH_4 !**



But let me move from discussions of mass psychology, to facts. Just about everyone wants to live in as clean an environment as possible. Pollution by human activities has always defiled the environment and continues to do so today. We should take cost-effective measures to reduce real pollution of air, land and water to a minimum. But efforts to cast CO_2 and other greenhouse gases as dangerous pollutants are misguided at best, and profoundly evil if taken to the extremes demanded by the Extinction Rebellion and other doomsday cults.

CO_2 has nothing to do with the disgusting air quality of this figure. Instead, it is due to a combination of human and non-human causes. Long before humans had any influence, East Asia has had bad air days because of huge dust storms from the Gobi desert. The smoke from traditional burning of stubble from harvested crops is another factor. Irresponsible burning of coal or other fossil fuels, without appropriate emission control of fly ash or oxides of sulfur and nitrogen is yet another contributor. Hare-brained schemes to limit CO_2 emissions will only make it harder get rid of real pollutants.

CO₂ is not a pollutant!



Power plant's breath:

70% N₂
5% O₂
5% H₂O
20% CO₂



Alice's breath:

75% N₂
15% O₂
6% H₂O
4% CO₂

Each human exhales about 2 pounds of CO₂ per day.

All life, including human beings, is made of carbon. And nearly all the carbon of life comes from CO₂ in the air or water, which plants have converted to useful organic molecules with the aid of sunlight and water in the photosynthetic process. CO₂ is most emphatically not a pollutant. As illustrated in this slide, the chemical composition of human breath does not differ much from the composition of the exhaust from coal power plant. In both cases almost the molecules of four chemicals, nitrogen, oxygen, water and carbon dioxide make up almost all of the "exhaust gas."

By what bizarre logic is carbon dioxide, as much a part of life as water or oxygen, classified as a "pollutant?" This is madness with potentially genocidal consequences. I am always glad to hear climate extremists assert that the human population must be reduce to under 1 billion people. This should focus the attention of the rest of us. Which 7/8 th of the world population must be eliminated, and how?

Everyone wants a clean environment

(Foreground: Barbara Happer at NJ solar farm)



We keep hearing about the need to replace fossil fuels with “renewable” energy. Here is a picture of my wife Barbara in front of a previously green field, not black with solar panels. The panels do not work at all at night, moderate clouds cut the output to no more than 25% of the clear-sky output. And Fossil fuel backup plants are needed to provide power in the evenings. For temperate latitudes, wintertime output of solar panels is a small fraction of summertime output. Honest economic analysis show that solar power makes no economic or technical sense. And I much prefer the green fields that

Environmentally friendly wind farm in Palm Springs, California



And then there is wind power. Wind power has most of the same problems as solar power, but at least the wind can still blow at night. In the old days when people did not spend their lives in front of computer display screens and went outdoors in all types of weather it was common knowledge that “the wind bloweth where it listeth.” Like solar power, wind power is intermittent and destabilizing to the electrical grid. Conventional fossil fuel plants must be maintained to provide essential power when the wind stops blowing. With these and many other difficulties of wind power, why should we replace the “cattle on a thousand hills” with bird-chomping, thumping, industrial windmills like those in this slide?

Renewable energy is the “reverse Robin Hood,” rob from the poor to give to the rich. Taxpayers subsidize those who can afford to lease land for wind and solar farms. Tax incentives pander to the upper class in gated communities who can afford to buy Tesla electric cars, while the common people who have little spare income, pay more and more for the necessities of life in order to subsidize their betters.



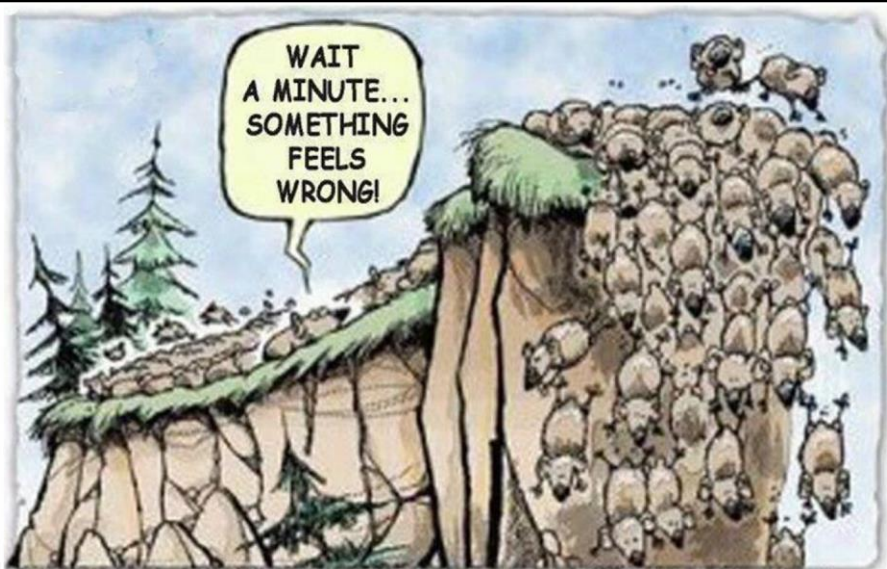
Moral: Do not listen to the advice of him who seeks to lower you to his own level.

Foxes of the world: Beware of emulating "die Energiewende."

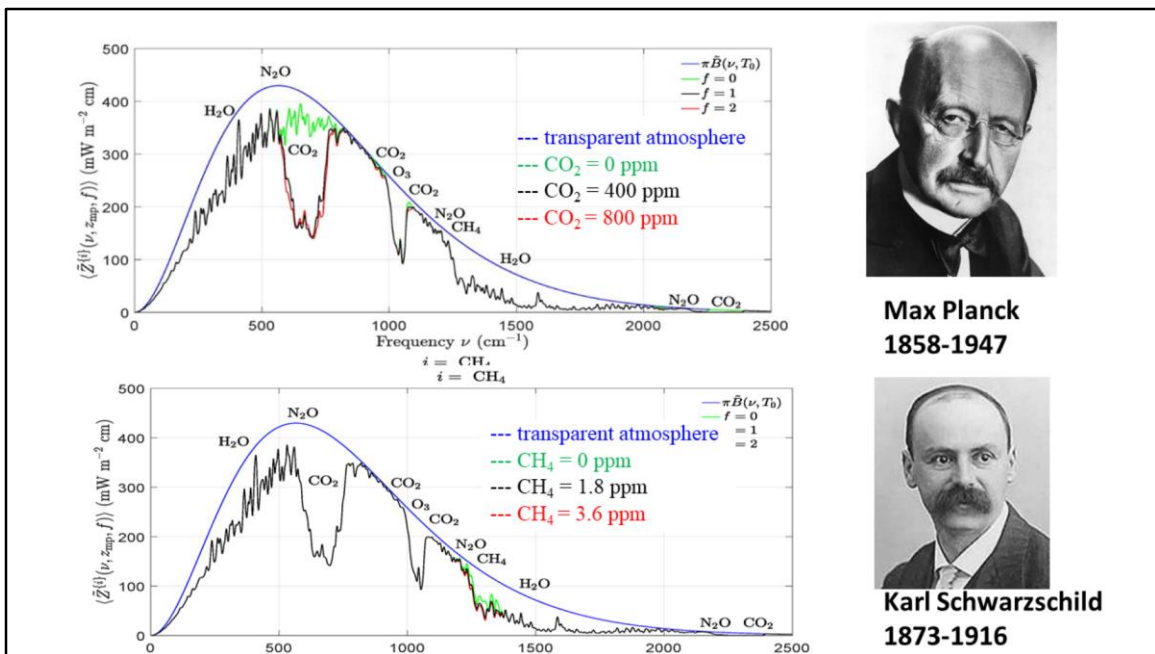
Countries who have made big investments in renewables, and demand that others follow suit, remind me of this fable by Aesop. A fox, who was not as clever as he thought, was caught in a trap, which cut off his fine, bushy tail. Not wanting to be embarrassed in front of other, wiser foxes, he argued that tails (fossil fuels) were passé and all foxes should cut off their tails to follow his example.

Said Fox, minus tail in a trap
My friends, here's a lucky mishap
Give your tails a short lease!
But the foxes weren't geese,
And none followed the fashion of trap.

Yet some fashions have no better reason.



**"Shut up, you moron! Do as you've been told
It's for your own good!"**



I was asked to prepare this talk for a general audience, but I cannot resist talking a little bit about the “science” of the non-existent climate emergency. There is indeed some greenhouse warming of the Earth, and we should be grateful for it, because Earth’s temperature would swing between intolerably cold at midnight to intolerably hot at noon without greenhouse gases and clouds.

Quantitative analyses of the greenhouse warming were made possible by Max Planck’s discovery of quantum physics in the year 1906. Planck’s famous blackbody spectra are shown as the blue lines in the figures above. The area under the blue curve is how much heat radiation would be emitted to space from each square meter of Earth’s surface, at a mean temperature of 15.5 C. I have included a photo of Max Planck in the upper right. It is noteworthy that Planck remained in Germany during the another popular delusion, Nazi rule, and Planck did his best to protect targets of Nazi hatred like Jewish scientists. He paid a heavy price for his courage. His son, Erwin Planck, was hung by the Nazis in January, 1945, for alleged involvement in a plot to assassinate Hitler. Resisting popular delusions requires courage and sacrifice.

The area under the blue curves above is 394 watts per square meter, which is much

larger than the average surface heating by sunlight, about 277 watts per square meter for this example. But because of greenhouse gases, the heat radiated by Earth to space is not the area under the blue curve, Planck's spectrum for a transparent atmosphere with no greenhouse gases. Instead, the energy is the area under the black curves, which is 277 watts per square meter, just enough to balance solar heating. It would be appropriate to call the black curve the Schwarzschild intensity, in honor of Karl Schwarzschild, whose photo is shown on the lower right of the figure. Schwarzschild showed that heat radiation from an semi-transparent atmosphere can come mostly from the surface for frequencies that are barely absorbed by greenhouse gases, or from greenhouse molecules high above the surface for frequencies that are heavily absorbed. The basic equation of radiative heat transfer is called the Schwarzschild equation, but he is even better known for finding one of the first analytic solutions to Einstein's general theory of relativity, and for the Schwarzschild radius of a black hole. This brilliant work was done while Schwarzschild was an artillery officer on the eastern front during World War I. Alas, Schwarzschild never returned from the Eastern front. He died not from Russian bullets, but from a rare autoimmune disease in 1916.

In addition to the blue Planck curve for a transparent atmosphere and the black Schwarzschild curve for an atmosphere with current concentrations of greenhouse gases, there are green curves, which shows what happens if you could suddenly remove all of the CO₂ from the atmosphere (the top panel), or all of the methane, CH₄ (the bottom panel). You can see that removing all the carbon dioxide would increase the radiation to space substantially, by about 30 watts per square meter, the area between the green and black curve on the top panel. Removing all of the methane would also increase the radiation to space for methane, the area between the green and black curve on the lower panel, but the increase is much less, only about 2 watts per square meter.

Finally the two panels include a red curve which is the radiation emitted to space if you double the CO₂ concentration (the top panel) or double the CH₄ concentration (the bottom panel). For most frequencies, the red and black curves are identical. But in the middle of the absorption bands you can see that the red and black curves differ slightly. The difference is hardly noticeable and amounts to a decrease of radiation to space of about 3 watts per square meter for doubling CO₂ concentrations from 400 ppm to 800 ppm, and an increase of 0.7 watts per square meter for doubling methane concentrations.

Climate fanatics are impoverishing most of the world on the basis of the black and red curves on this figure. The curves show how much cooling radiation to space changes if you double the atmospheric concentrations of CO₂ or CH₄. Doubling would require that current emission rates continue at current levels for several

centuries. **“Whom gods would destroy, they first make mad!”**

Modelled warming (gray) is much larger observed warming (red).

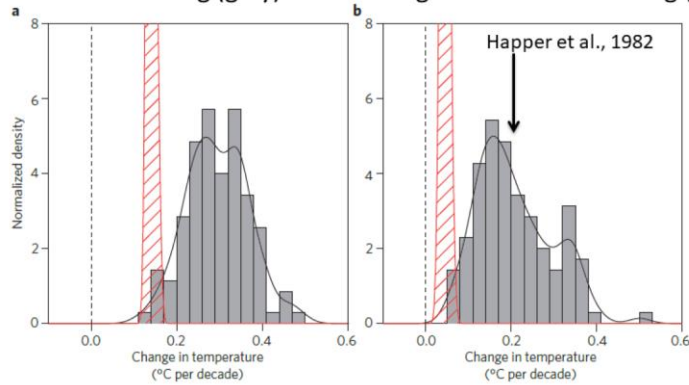
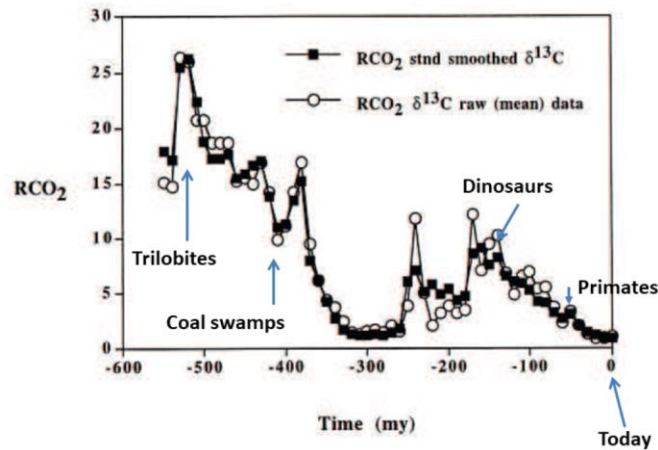


Figure 1 Trends in global mean surface temperature. **a**, 1993–2012. **b**, 1998–2012. Histograms of observed trends (red hatching) are from 100 reconstructions of the HadCRUT4 dataset¹. Histograms of model trends (grey bars) are based on 117 simulations of the models, and black curves are smoothed versions of the model trends. The ranges of observed trends reflect observational uncertainty, whereas the ranges of model trends reflect forcing uncertainty, as well as differences in individual model responses to external forcings and uncertainty arising from internal climate variability.

Fyfe et al., Nature Climate Change, Vol 3, p. 767, September 2013.

Many peer reviewed papers have noted that observed warming has been much less than model predictions over the last few decades. This is one example from Nature Climate Change, a relatively alarmist journal. These are surface temperatures. The discrepancies are even more dramatic for mid tropospheric temperatures measured with satellite radiometers or radiosondes.

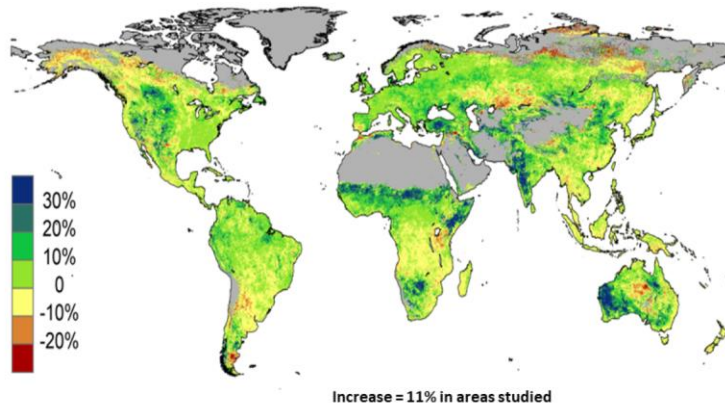
The Earth has been in a CO₂ famine
for several tens of millions of years
 $RCO_2 = \text{past CO}_2 / \text{today's CO}_2$



R. A. Berner and Z. Kothavala, Geocarb III: A Revised Model of Atmospheric CO₂ over Phanerozoic Time, American Journal of Science, V. 301, pp. 182-204 (2001)

The current CO₂ levels on Earth are much smaller than values typical of most of the Phanerozoic, since the Cambrian Period, about 550 million years ago, when the fossil record first became rich. Most plants are adapted to much higher CO₂ levels than those today. Satellite surveillance already shows that the Earth's surface is getting greener.

Global Greening From CO₂ Fertilization: 1982-2010



Donohue et al, GRL (June 2013) DOI: 10.1002/grl.50563

This is work by a group from the Australian Climate Laboratory. The map shows change in surface vegetation in the areas studied over the 29 year period 1982-2010. Most of the areas showed a net greening giving an overall increase of 11%. In addition to the work shown here, Ranga Myeni of Boston University and his group find that over the past 30 years, 20.5% of the earth's land area became greener while only 3% became browner. (Precipitation effects can be separated out by correlating local rainfall with change in vegetation pixel by pixel).

Impact of CO₂ fertilization on maximum foliage cover across the globe's warm, arid environments; Randall J. Donohue, Michael L. Roderick, Tim R. McVicar, and **Graham D. Farquhar**

Article first published online: 19 June 2013, DOI: 10.1002/grl.50563

Abstract

What about the 97% “consensus?”

- **The surveys on which the 97% figure is based are phony.**
- **Scientific truth is determined by experiment and observation, not by voting.**
- **Experiment and observation contradict alarmism.**
- **CO₂ is a benefit, not a pollutant.**

97% of Soviet Biologists supported Lysenkoism from 1930 to 1964.



Trofim Lysenko with Stalin's branched wheat.

Some of Lysenko's "new biology:"

Genes are a wicked myth designed by enemies of the people.

Acquired characteristics can be inherited.

Spontaneous generation of life happens routinely.

Full government backing.

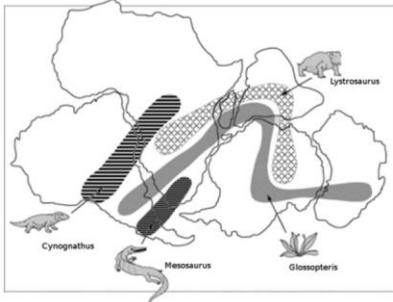
Scientific consensus is often wrong



Alfred Wegener
(1880-1930)

Proponent of the theory of
continental drift.

Perished on the Greenland
ice cap in 1930.



- Alfred Wegener's theory of continental drift was bitterly opposed until the 1960's.
- In 1928, American geologists organized a special conference to ridicule Wegener's ideas.
- Wegener, with a PhD in astronomy, was resented by geologists, especially American and European geologist. Climate scientists also sneer at critics who are distinguished physicists, astronomers, etc.

Summary

- Policies to slow CO₂ emissions are based on flawed computer models which exaggerate warming by factors of 2 or 3.
- More CO₂ is an overall benefit, so costly “mitigation” schemes are harmful.