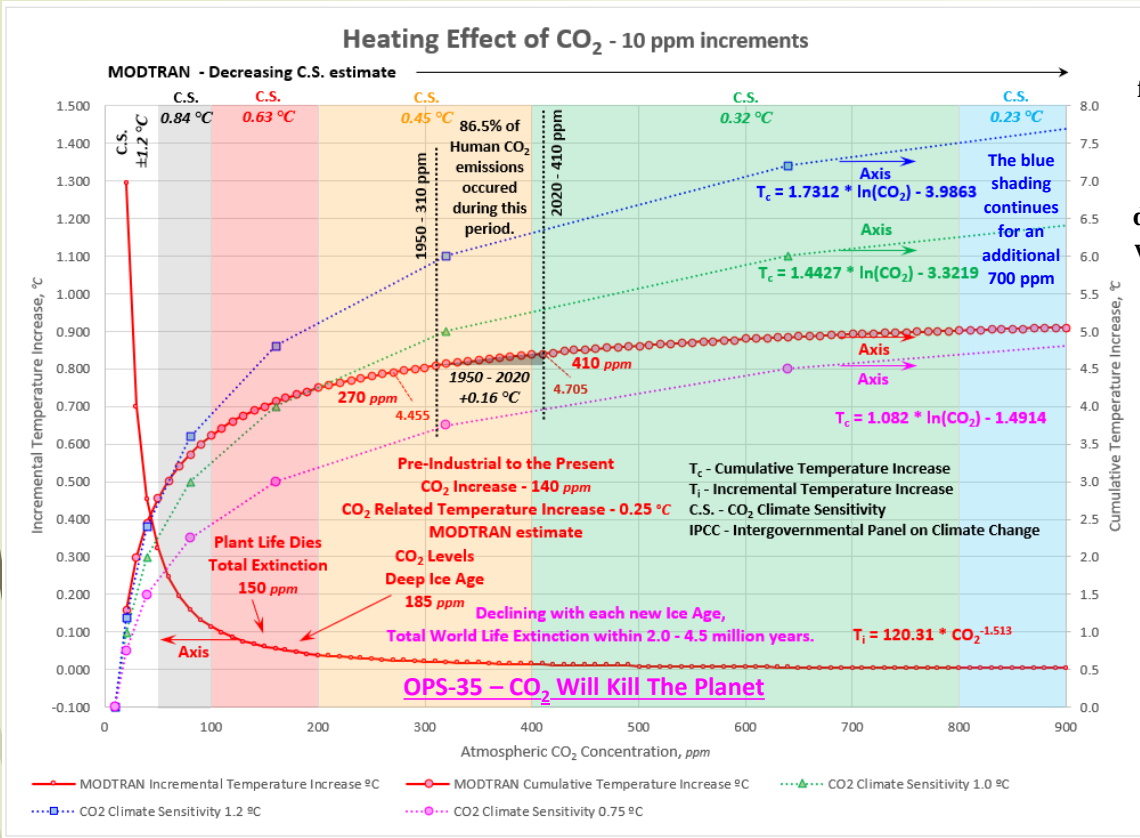


CSS-7a CO₂ – The Feckless Greenhouse Gas - Sensitivity

More detail? climatchangeandmusic.com

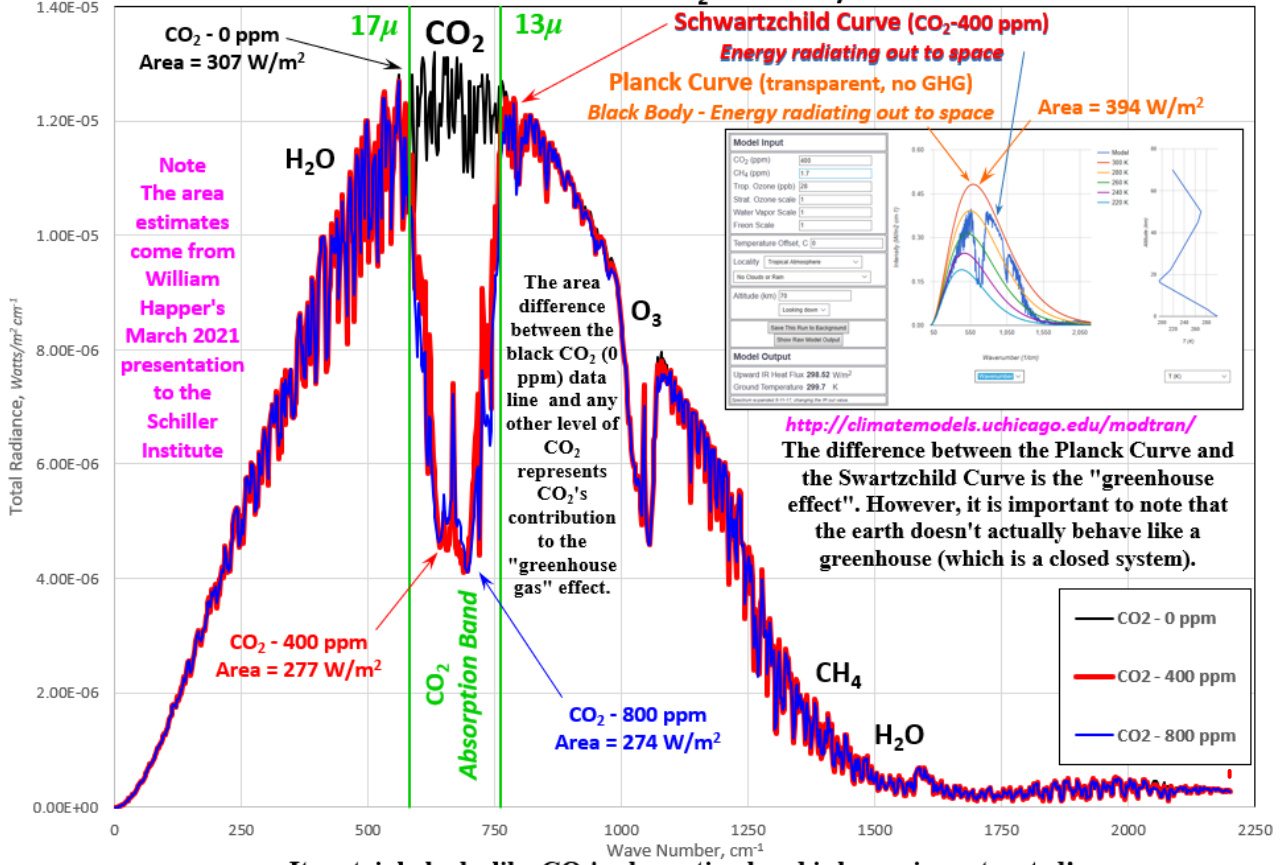


The whole Catastrophic Anthropogenic GloBULL Warming (CAGW) alarmist narrative is dependant almost exclusively on atmospheric CO₂ concentrations. The CAGW narrative includes other minor forcings but they essentially cancel each other out. Notably, the CAGW narrative has conveniently chosen to ignore most of the solar forcings (including only the Total Solar Irradiance (TSI)). TSI is only one (and a minor one at that) of the many solar forcings that affect our planet. More on that later in the story.

One of the most important parameters in determining the importance of CO₂'s role in the earth's climate is the CO₂ Climate Sensitivity (CCS). The CCS is nowhere near to being settled science and is subject to some terminology discrepancies. For the purposes of this discussion, the CCS will refer to the temperature increase that can be expected with a doubling of atmospheric CO₂ concentrations (over a reasonable time period (a generation or two)). Most of the literature is showing that the Historical CCS is likely somewhere around 1.0 °C. The IPCC programmers use a slightly higher value of 1.2 °C, but then without empirical data to back up their positive feedback theory, they multiply the CCS by a factor of up to 3 times. The measurements of energy radiating out to space (chart below) strongly suggest that the CCS decreases continually as atmospheric CO₂ concentrations increase.

CO₂ is not a Pollutant — Exposing the Fraud Behind the Global Reset/Green New Deal - YouTube

Data Source: University of Chicago (MODTRAN) modtran.spectral.com



Feckless CO₂ Climate Sensitivity

Based on the University of Chicago's MODTRAN model, the CO₂

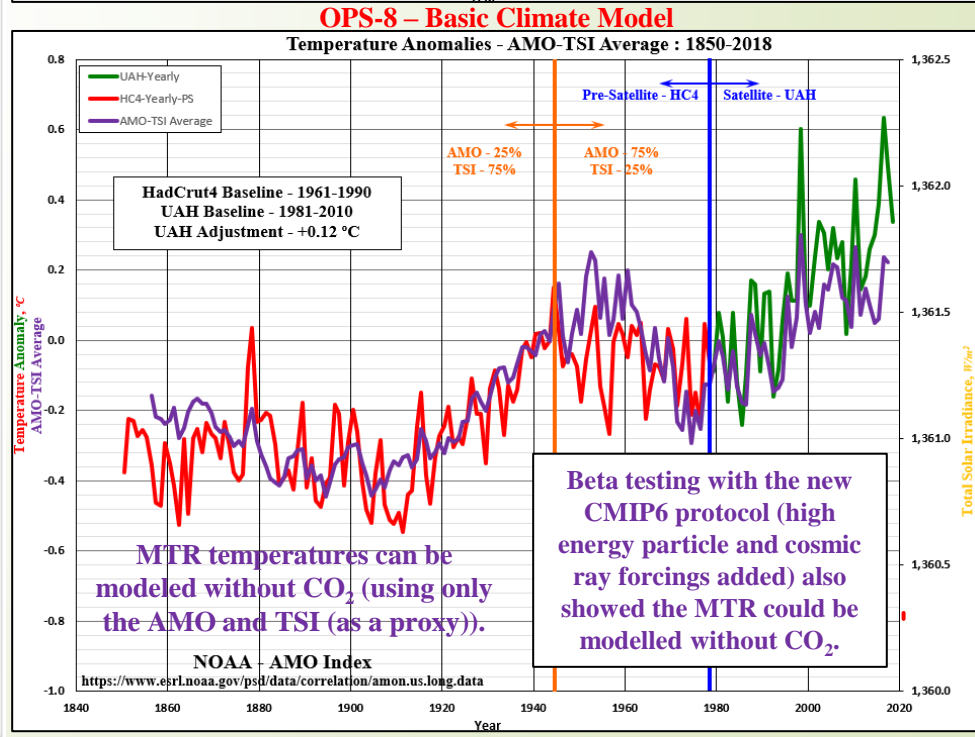
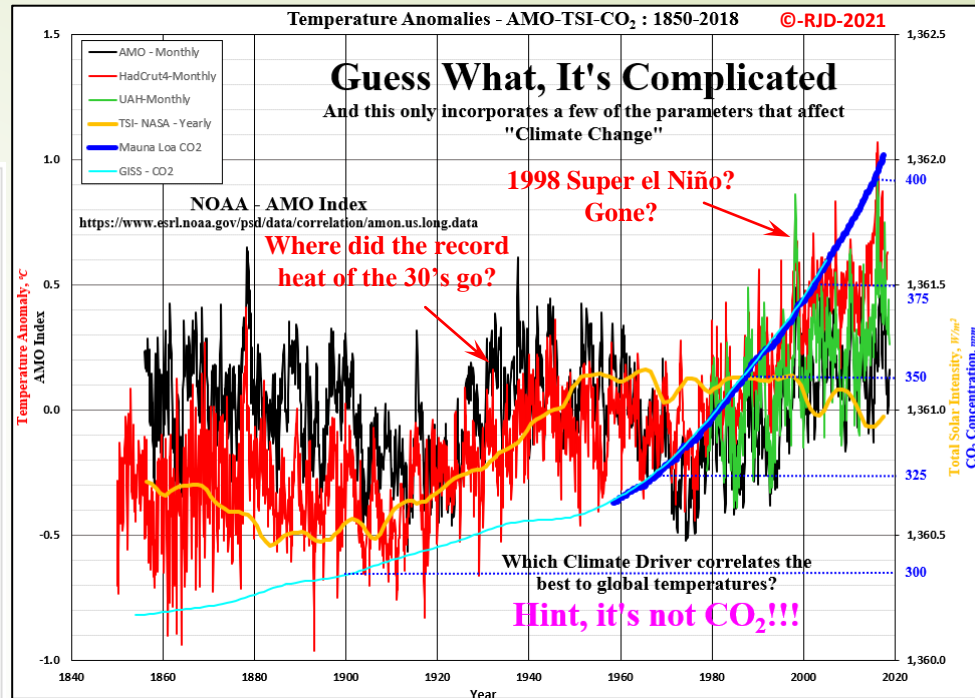
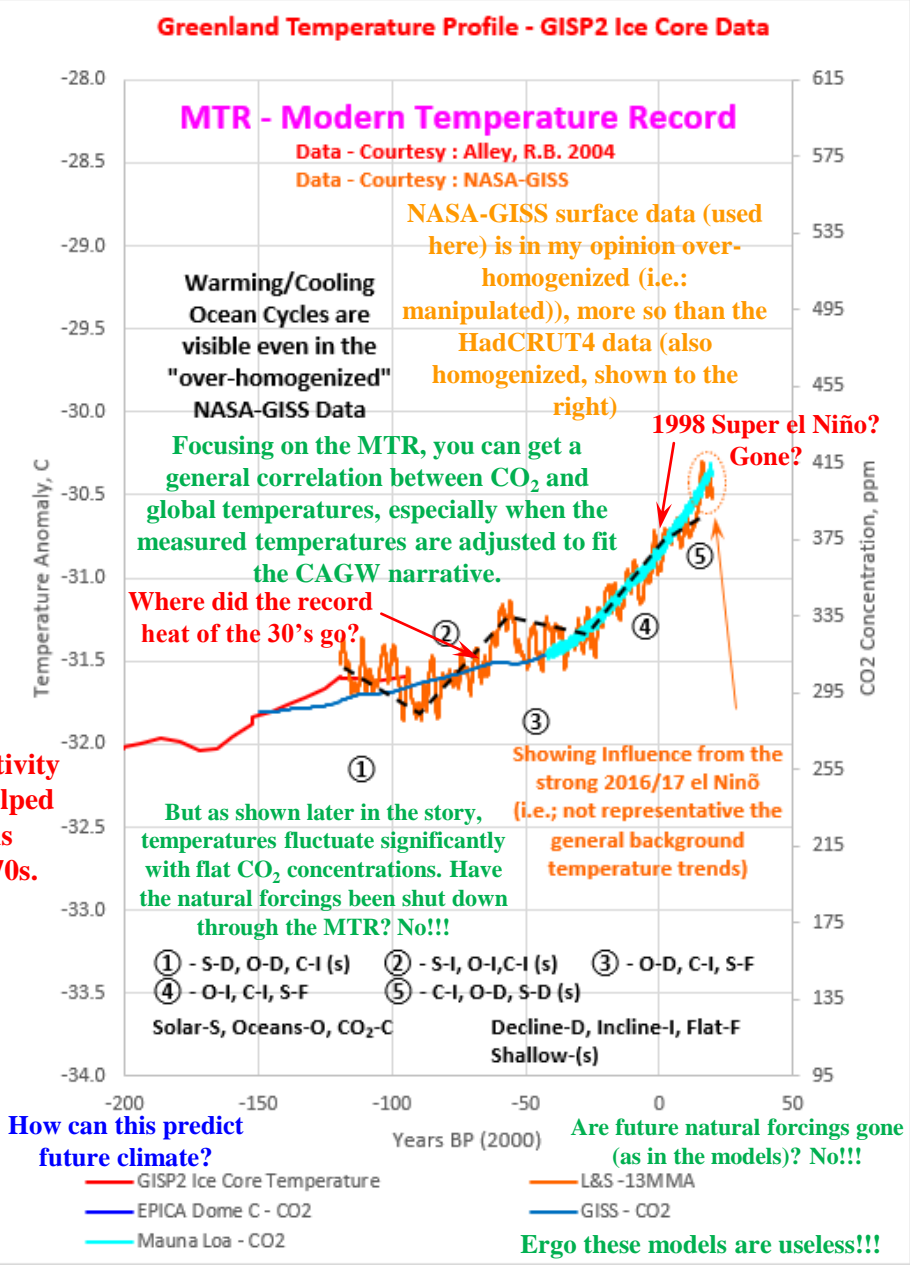
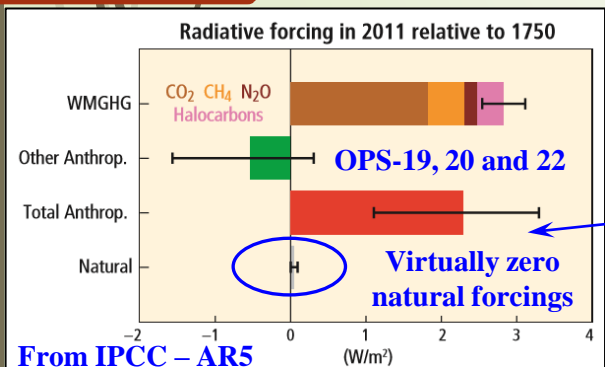
CSS-7b CO₂ – The Feckless Greenhouse Gas – Computer Models

The IPCC computer modeling is focused on the Modern Temperature Record (MTR, 1850 – Present). Is CO₂ the only radiative forcing acting on global temperatures over this period. No, it is complicated. The Atlantic Multi-decadal Oscillation (AMO) is obviously very influential. Solar activity was prominent pre-1950 and human CO₂'s brightest days are post-1950

(since 86.5%+ of human emissions occurred after 1950). Is CO₂ the only forcing post-1950? No. The AMO (and recent ENSO) influences can be seen (even in the NASA-GISS over-homogenized data). The data again shows how FECKLESS the CO₂ forcings are. Despite continually rising CO₂, temperatures did not rise from 1945 to 1975. They dropped slightly in the NASA-GISS surface data and dropped noticeably in the HadCRUT4 surface data. The ocean cycles obviously have more forcing capacity than CO₂. The same general scenario has been playing out since the turn of the century. Rather than increasing with CO₂, the temperatures paused (2002 to 2015) and if not for the very strong el Nino ocean cycles over the last 5 years, they would still be paused. The AMO has been relatively flat since 2000, so what is causing the "Pause"? It could not possibly be the gradual decline in solar activity since 2000? It would appear that CO₂ warming can be easily overcome with cooling ocean cycles and minor solar activity declines. FECKLESS!

Feckless CO₂ Computer Models

Even the slight solar activity decline around 1970 helped trigger the Ice Age is Coming Scare of the 70s.



The Real Existential Threat

CSS-7c CO₂ – The Feckless Greenhouse Gas – Holocene Relations

More detail? climatechangeandmusic.com

When viewed from the Holocene perspective, CO₂ does come across as a feckless Greenhouse Gas. The temperature fluctuations from natural forcings are significantly larger than the supposedly huge increase in atmospheric CO₂ concentrations. Again, **FECKLESS** (even assuming CO₂ was responsible for virtually all the MTR warming, it is not!).

This slide provides more perspective on the potential for temperature fluctuations with no input from CO₂'s rather FECKLESS Greenhouse Gas contribution. The natural forcings (primarily solar through direct and indirect means) are responsible for the Holocene temperature fluctuations. The longer-term cycles (i.e.: Milankovitch, still pushing temperatures down) are responsible for the general trends, but a wide variety of shorter-term cycles are also obviously active. Those shorter-term cycles can be seen in more detail on shorter time scales. The Wolf, Spörer, Maunder and Dalton Solar Minimums hit every 100 to 200 years, keeping the temperatures very low through the Little Ice Age (LIA). The LIA is visible on all the temperature curves plotted here. Why is this important? That discussion takes us back to the computer model discussion on the previous page. The IPCC models are programmed to respond to CO₂ almost exclusively. Obviously, those models

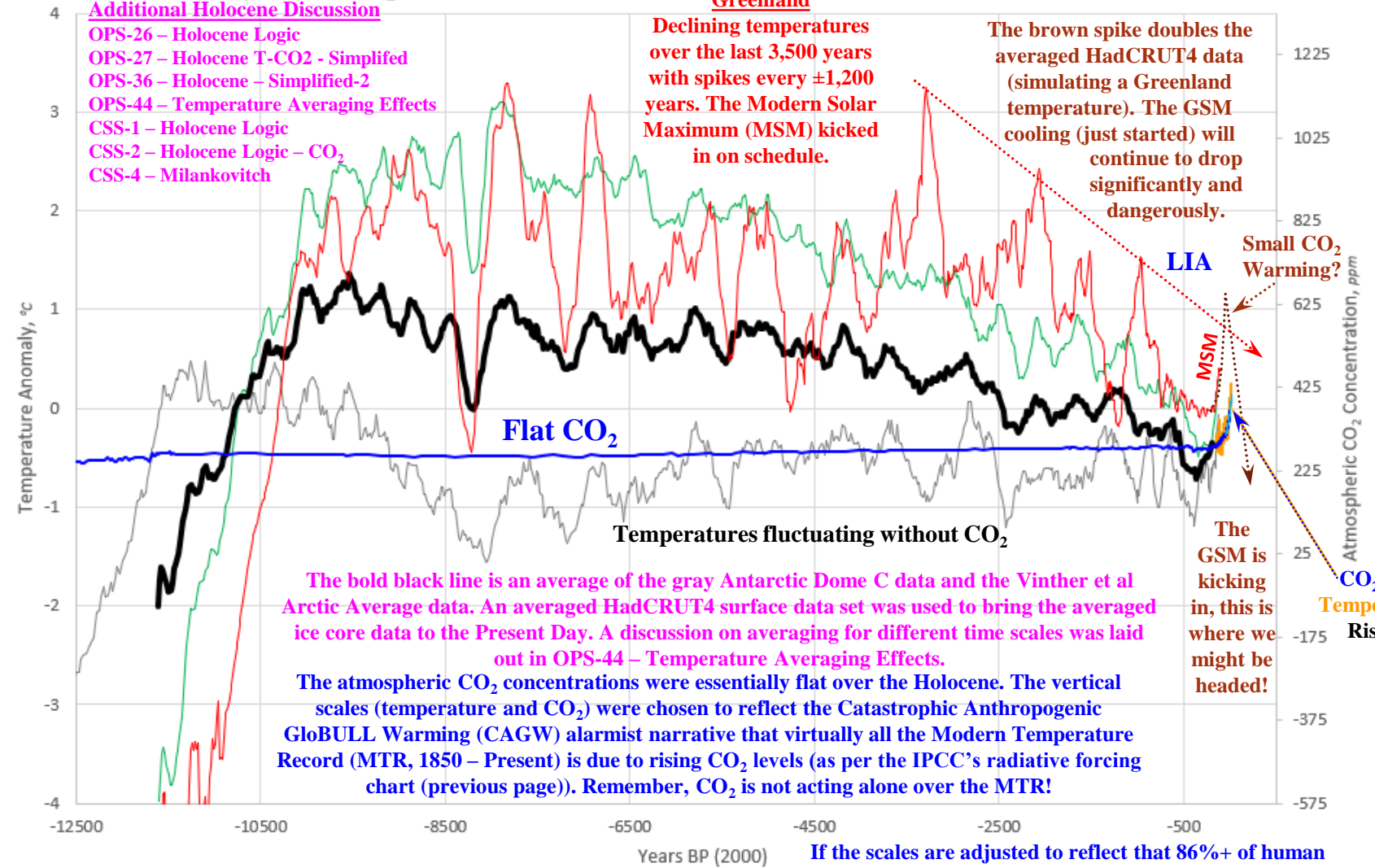
Feckless CO₂ Holocene Relations

The Grand Solar Minimum (GSM) we are just entering is one of those natural forcings that the IPCC computer models are incapable of predicting.

cannot replicate the temperature fluctuations over the Holocene!!! The natural forcings did not suddenly stop acting on our planet despite that the IPCC "climate scientists/programmers" have decreed it to be so!!! The natural forcings were present and active over the MTR and will continue to be active in the future!!!

That is borderline genocide, a lot of people will die that did not need to. The data and science are there, they are oblivious or knowingly ignoring the threat staring us in the face.

Global Holocene Temperature-CO₂ Correlations



- Additional Holocene Discussion**
- OPS-26 – Holocene Logic
 - OPS-27 – Holocene T-CO₂ - Simplified
 - OPS-36 – Holocene – Simplified-2
 - OPS-44 – Temperature Averaging Effects
 - CSS-1 – Holocene Logic
 - CSS-2 – Holocene Logic – CO₂
 - CSS-4 – Milankovitch

The bold black line is an average of the gray Antarctic Dome C data and the Vinther et al Arctic Average data. An averaged HadCRUT4 surface data set was used to bring the averaged ice core data to the Present Day. A discussion on averaging for different time scales was laid out in OPS-44 – Temperature Averaging Effects.

The atmospheric CO₂ concentrations were essentially flat over the Holocene. The vertical scales (temperature and CO₂) were chosen to reflect the Catastrophic Anthropogenic GlobBULL Warming (CAGW) alarmist narrative that virtually all the Modern Temperature Record (MTR, 1850 – Present) is due to rising CO₂ levels (as per the IPCC's radiative forcing chart (previous page)). Remember, CO₂ is not acting alone over the MTR!

The empirical data (not my data) again shows that CO₂ is not a significant climate driver. Dare I say FECKLESS again?

If the scales are adjusted to reflect that 86%+ of human CO₂ emissions have occurred post-1950, the CO₂ curve will be reduced by another 50%. Not that scary anymore.

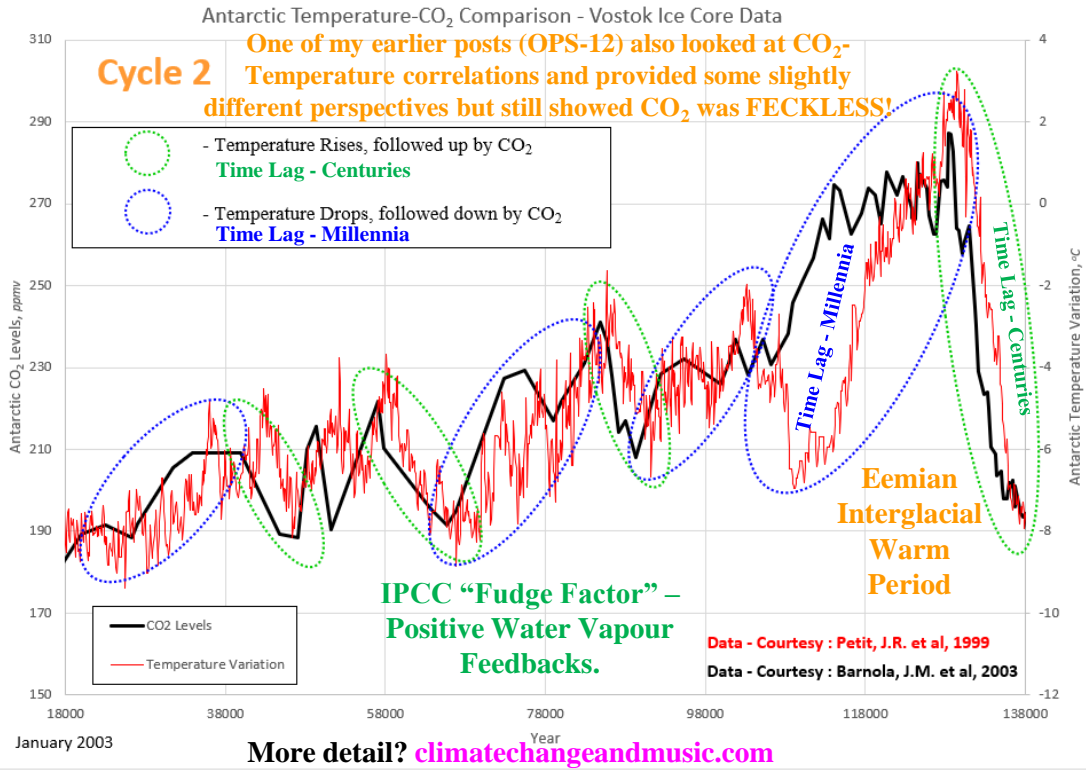
— V-G-200-MA — Dome C-200-MA — NH-SH-200-MA — HadCRUT4 -13MMA-A-TA-A — GISP2 Anomaly — CO₂ Age (yr BP-2000) — Mauna Loa CO₂

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CSS-7d CO₂ – The Feckless Greenhouse Gas – Correlations/Scientific Method

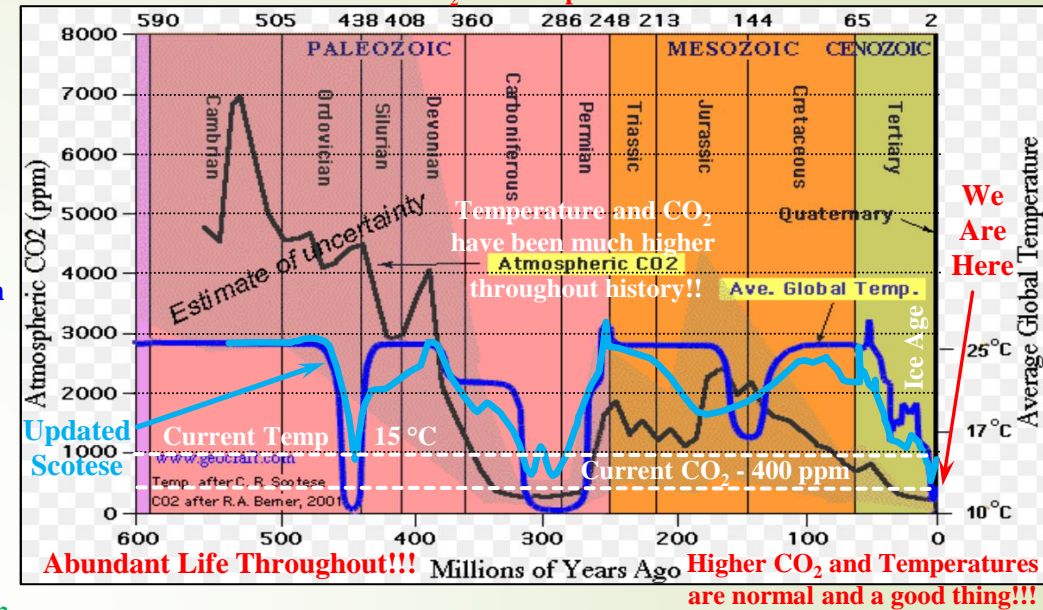
Somehow the planet survived despite much higher CO₂ and Temperatures!!! Hmmm....

Cycle 2 has been expanded here to better show the delayed CO₂ responses.

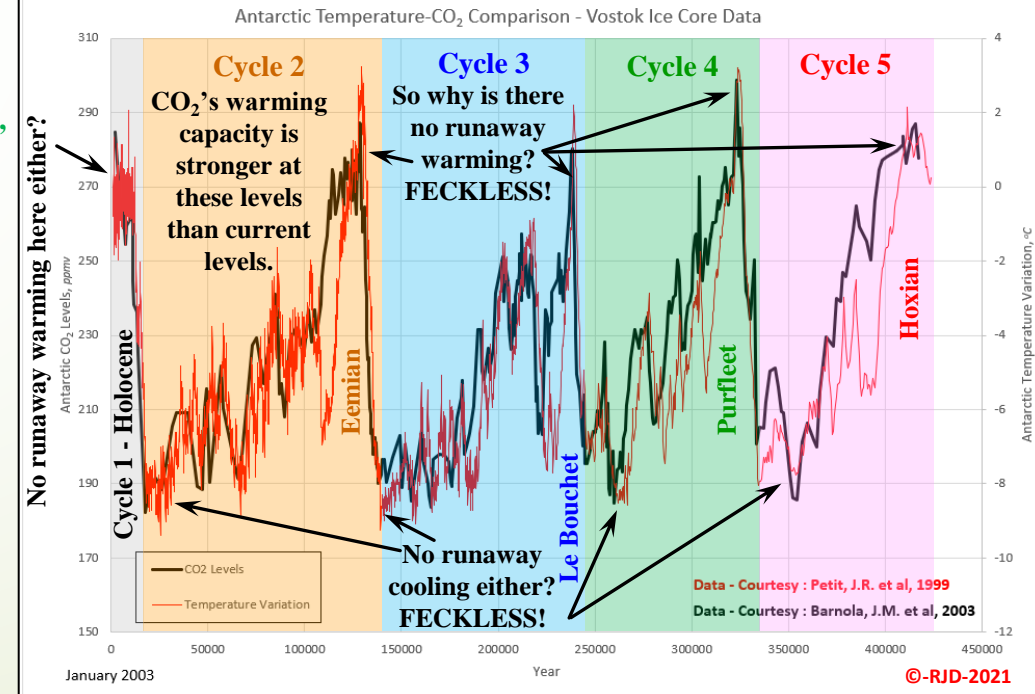


There is no empirical Temperature/CO₂ dataset that shows CO₂ driving the climate on any statistically significant historical time scale. Empirical data is a very basic requirement to move an idea from a theory to a fundamental scientific principle. The CAGW narrative has no empirical data backup and is closer to a religious belief than science.

The IPCC reported CO₂ CS includes their "fudge factor". Another CAGW theory with no supporting empirical data. No empirical data, no scientific basis.



CO₂ is not driving the climate on these time scales – FECKLESS once again!



Feckless CO₂ Correlations Scientific Method

CO₂'s theoretical (historical) Climate Sensitivity (CS) (± 1 °C) is very simply not capable of catastrophic temperature increases!!!

Throughout the historical data (regardless of the time scale), there is little to no periods where CO₂ is driving the climate in any meaningful manner. The shorter time periods were shown/discussed on the previous slides. On a scale of hundreds of millions of years (upper right plot), there is no correlation between CO₂ and temperature. For the CAGW alarmists that want to discredit this plot, please (as I have requested many times) bring forward a better option. Scotese has updated his temperature profile which I have superimposed on the more common image generally used. Another option is the plot used by Dr. Patrick Moore (which I have included in a recent post, OPS-41 – Geological Time Scale Visualization). On a shorter timescale (420,000 years from the ice core data), there is definitely a correlation between CO₂ and Temperature. Unfortunately for our FECKLESS CO₂ Greenhouse Gas, the temperature is driving the CO₂ concentrations. Essentially, the temperatures rise and fall in concert with the Milankovitch cycles. As the temperatures rise, CO₂ is released from the ocean (with a time lag of centuries). As the temperatures drop, CO₂ is reabsorbed by the oceans (with a time lag of millennia since reabsorption is a much slower process).

CSS-7d CO₂ – The Feckless Greenhouse Gas – Summation

When all of the available data is reviewed, the CAGW alarmist story falls apart. A “climate scientist” that arbitrarily decides to ignore solar activity (the source of 99%+ of the energy that reaches and drives the earth’s climate) is not in my opinion a true scientist. CO₂ is just one of many climate drivers, but its contribution does not show up statistically in historical data because it plays a very minor role!

Is CO₂ a FECKLESS GreenHouse Gas? Well,

- CO₂ Climate Sensitivities are not settled science, but the direct measurements of energy radiating out to space strongly indicate that CO₂’s warming capacity is dropping much faster than the theorized exponential declines (which is already rapidly reducing the effectiveness). Here is an analogy (good one or not) - Atmospheric CO₂ level influences, in its youth (newborn/toddler stages) is a very dominant force, introducing dramatic life/forcing changes. Through Grade School, rationality settles in and the changes increasingly become more gradual. CO₂’s influence is currently transitioning from a Youth to an Adult. Changes will continue after the transition but they are very gradual and we learn to live with/adapt to those changes. The CAGW alarmists seem to be exhibiting all of the erratic and irrational behavior associated with the Puberty stage CO₂ is currently working through. Regardless of the scenario chosen, CO₂’s CS are simply not high enough to lead to dangerous levels;
- The ocean cycles (visible throughout the MTR) routinely overpower the warming CO₂ may or may not be providing (the temperature decline from 1945 to 1970 (AMO cooling) and the many dramatic temperature swings related to the ENSO cycle (el Niño and La Niña));
- Minor declines in Solar Activity (the 1970’s Ice Age is Coming Scare and the 21st Century Temperature “Pause”) easily overpowered the CO₂ Warming;
- The MTR can easily be modeled without using CO₂ as a forcing (using only the AMO and TSI (as a proxy) or the new CMIP6 solar forcing computer protocols);
- Based on all the Holocene data (plotted to reflect the CAGW alarmist narrative), CO₂ visually plays only a minor role (at best). Naturally induced Temperatures fluctuate significantly more than the proposed CAGW alarmist simplistic CO₂ only narrative. Remember CO₂ is not acting on its own through the MTR and into the future. The natural cycles were not turned off just because the IPCC programmers declared it to be so!
- While life has been abundant on this planet, CO₂ (and temperatures) have almost always been significantly higher. And CO₂ shows no correlation with temperature over that 550 million year timescale.
- CO₂ and temperature do show a very direct correlation in the ice core data (over the last 800,000+ years) but temperature is driving atmospheric CO₂ levels (not the other way around). Strange that CO₂ cannot produce a runaway effect when its effectiveness is much stronger at lower concentration levels. **FECKLESS – spineless, ineffectual, hopeless, weak, incompetent (sums it up quite well).**

So YES, in my opinion CO₂ does appear to be a very FECKLESS GreenHouse Gas?

The focus on CO₂ is a tragic waste of capital (especially in the wake of the financial catastrophe our governments have inflicted on us with the COVID-19 fiasco). There are real world problems that could be solved with the gross volumes of cash being thrown at inefficient and unnecessary CO₂ emission reduction initiatives. And the focus on CO₂ is overlooking the real and in our face existential climate threat (i.e.: cooling associated with the Grand Solar Minimum (GSM) we are just entering and feeling the early effects of). Fix our financial situation, then worry about CO₂ (#delaythegreen).