THE MISGUIDED NARRATIVE ON CARBON EMISSIONS

Thorpe Watson
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Dear Prime Minister (The Honourable Mark Carney),

QUESTION: Do carbon emissions (aka "carbon dioxide", " CO_2") increase the CO_2 content of the atmosphere?

ANSWER: NO!

Intuitively, and without any knowledge of physical chemistry, it would have been reasonable to answer this question in the affirmative. In fact, a comparison of annual increases to annual emissions suggests that our emissions are responsible for at least 50% of the atmospheric increase.

Then why is the answer "NO"? The following solves this mystery, hopefully in terms that can be understood by people outside the scientific community, especially by our politicians.

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The sale of carbon credits and carbon capture and storage (CCS) technologies are often promoted as solutions to the climate crisis (an imaginary, political hobgoblin) but are, in reality, ineffective and misleading. These virtue-signaling practices are wasting resources by duplicating the natural carbon-absorbing role of the oceans.

Far from being a pollutant, carbon dioxide (CO_2) is essential to life, as critical as water, oxygen, and sunlight. It supports plant growth and sustains ecosystems. Alarmingly, atmospheric CO_2 levels are already near the threshold where plant growth will falter.

Western society's fear that carbon emissions (i.e. CO_2) will destabilize the climate stems from fatally-flawed climate models and the flawed assumption that human

emissions significantly increase atmospheric CO_2 levels. The latter assumption overlooks fundamental principles of physical chemistry, particularly Henry's Law and phase equilibrium, which govern CO_2 distribution between the atmosphere and oceans.

Consider a hypothetical lifeless planet with the Earth's atmosphere. Emitting 100 tonnes of CO_2 would move all of the atmosphere's CO_2 molecules closer together, thereby increasing the partial pressure of CO_2 throughout the atmosphere. However, if oceans are subsequently introduced, they act as a natural sink, absorbing both new and old CO_2 molecules indiscriminately until equilibrium is restored.

The new CO_2 molecules need not be absorbed for this equilibrium to take effect, rendering it impossible to attribute specific atmospheric CO_2 increases to human emissions.

One might assume that, given the oceans hold roughly 50 times more CO_2 than the atmosphere, only 2 tonnes of a 100-tonne emission would remain in the air. This oversimplification ignores Henry's Law, which dictates that atmospheric CO_2 levels depend on the non-ionic CO_2 content in the ocean's surface layer, itself influenced by sea-surface temperature (SST). Warmer oceans release more CO_2, while cooler oceans absorb it. Thus, observed rises in atmospheric CO_2 are closely tied to increasing SST rather than to fossil fuel emissions.

In other words, the level of atmospheric CO_2 is controlled by the concentration of non-ionic CO_2 in the surface layer of the oceans, all in accordance with Henry's Law. And the concentration of non-ionic CO_2 in the surface layer of the oceans is controlled by the SST. Any excess atmospheric CO_2 reacts with salt water to form carbonate ions (ionic CO_2 - see Figure 2 below).

Note the green curve adjacent to the x-axis - non-ionic CO_2.

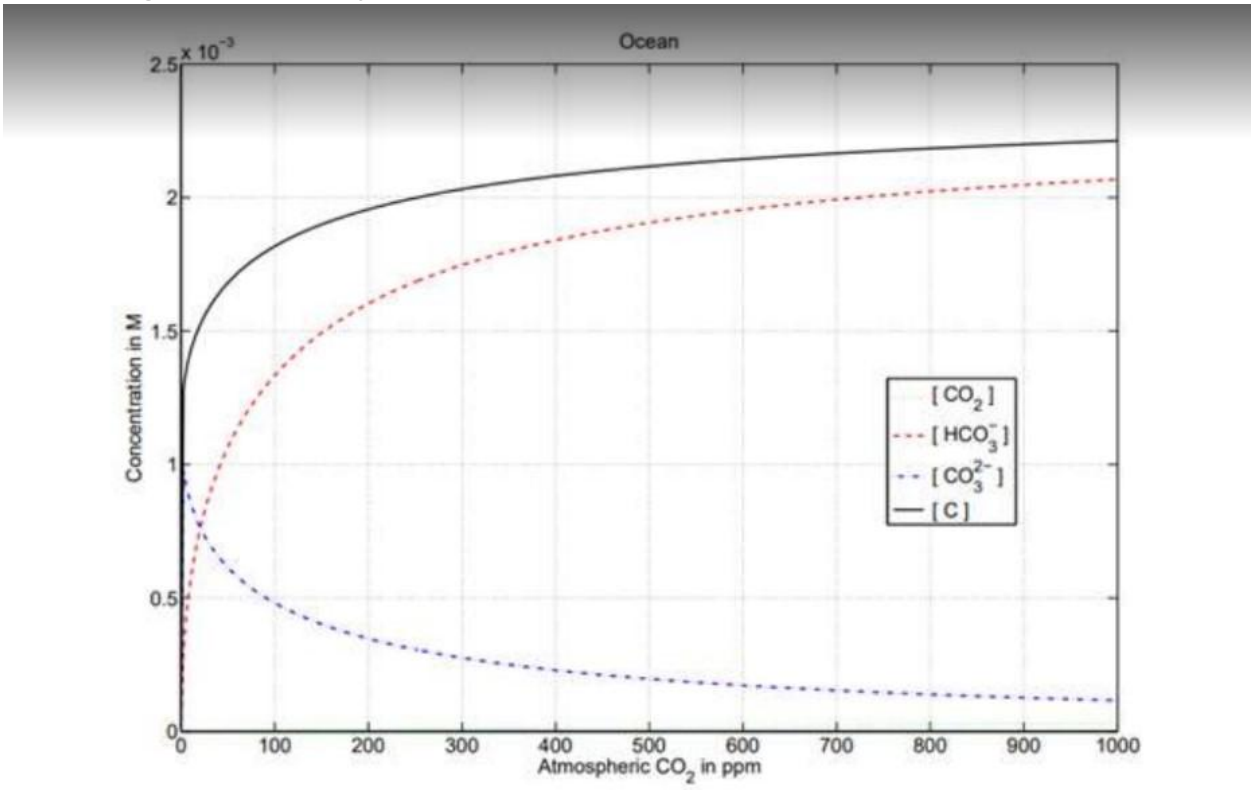

Figure 2: Inorganic carbon in ocean water: uncharged $[CO_2]$, bicarbonate $[HCO_3^-]$, carbonate $[CO_3^{2-}]$ and total [C] of (18) versus concentration of CO_2 in the atmosphere. Calculated with (20), (17), (14) and (11), under the assumption of complete chemical equilibrium. The ocean alkalinity is $[A] = 2.3 \times 10^{-3}$ M and the temperature is $T = 25$ C.

In conclusion, the observed increases in atmospheric CO_2 may be attributed to increases in the SST and NOT to fossil fuel emissions. The fear of such emissions as a climate destabilizer is unfounded, confirming the claim that there is no climate crisis. CCS and carbon credits misdirect resources from addressing real environmental challenges.

Respectfully submitted,

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