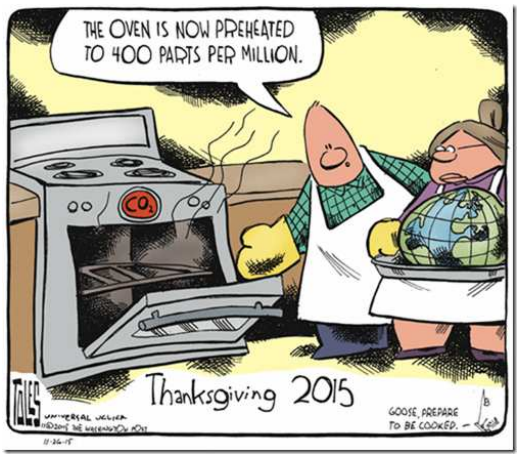
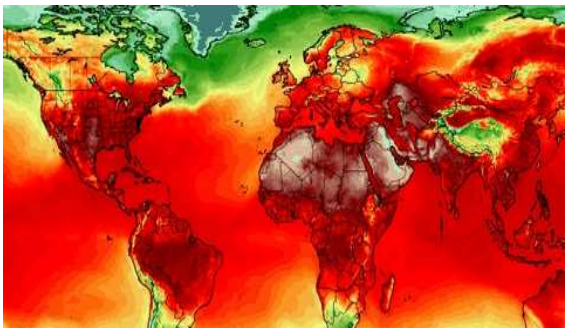
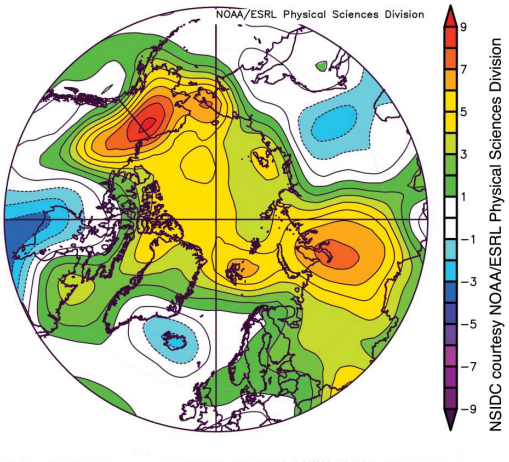
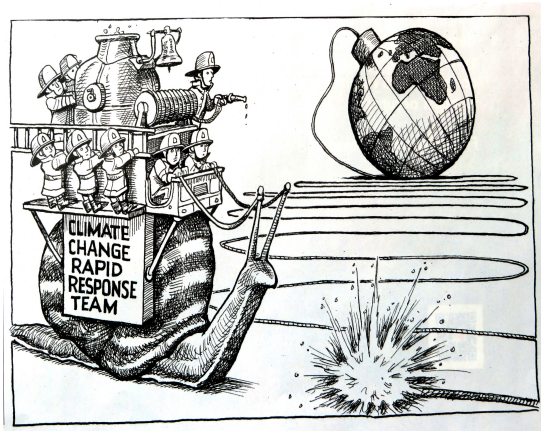
Homo Sapiens, can you hear me now? -- Ma Nature



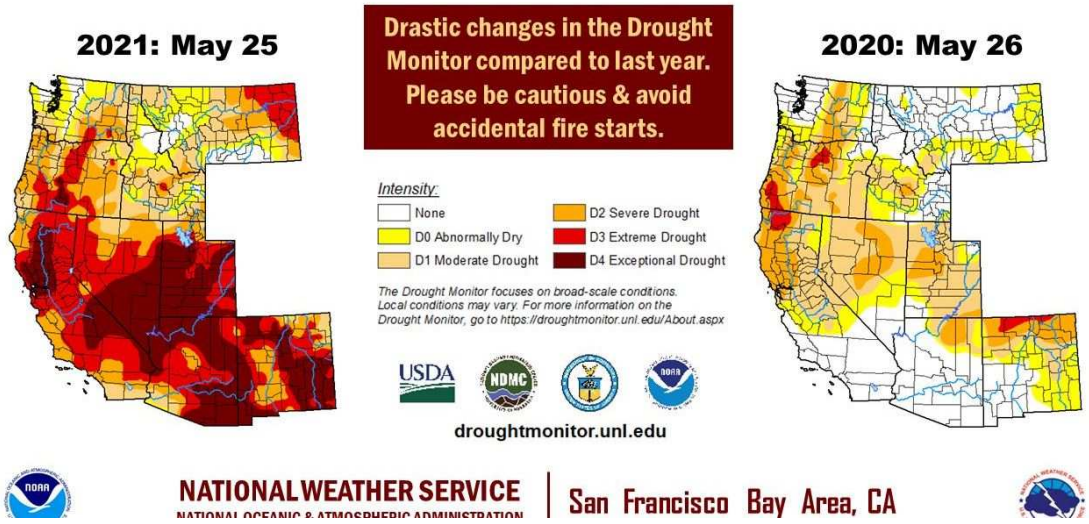


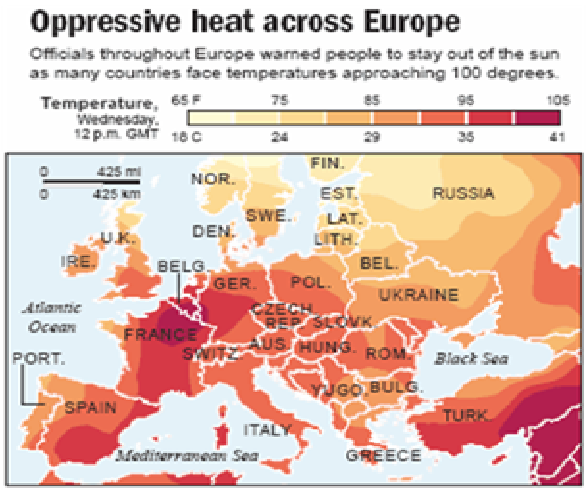
Air Temperature Difference
December 2017

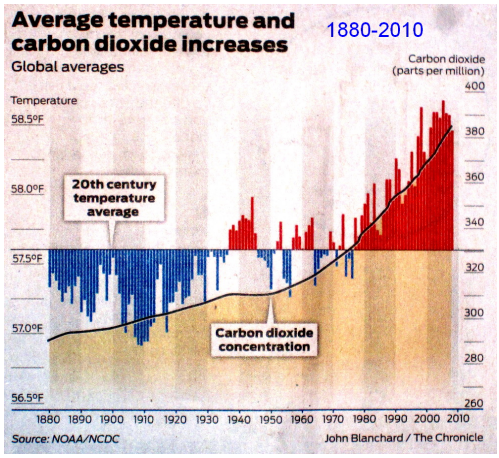




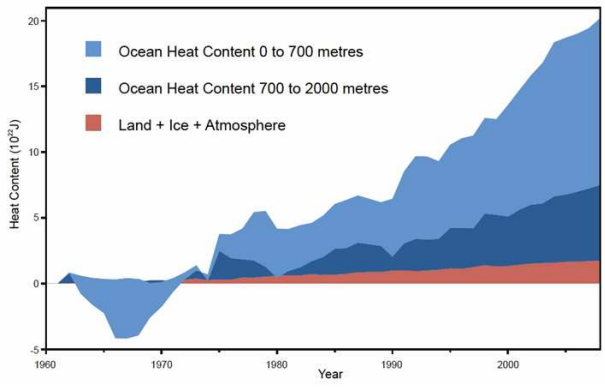
A TALE OF TWO YEARS

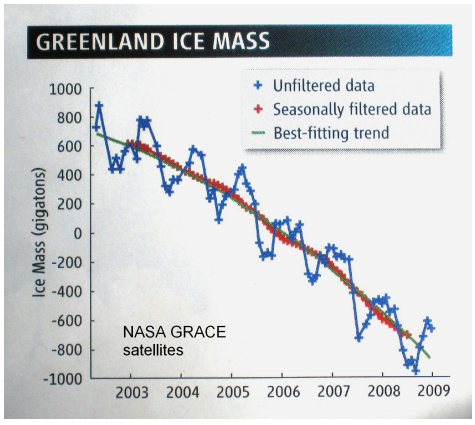




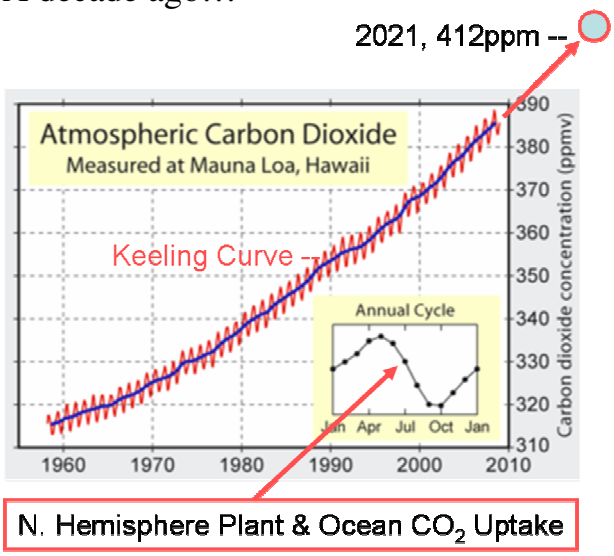


Ocean heating…

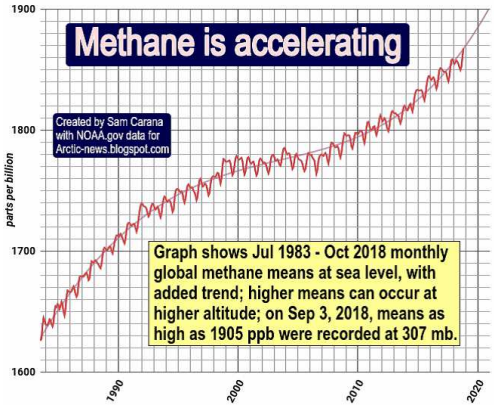




A decade ago…



Now >412ppm. If all society's CO_2 emissions were eliminated, it would take >200 years for atmospheric CO_2 levels to return to pre-industrial levels. Methane emissions, however, are growing now, accelerated by our warming, despite what we might do.

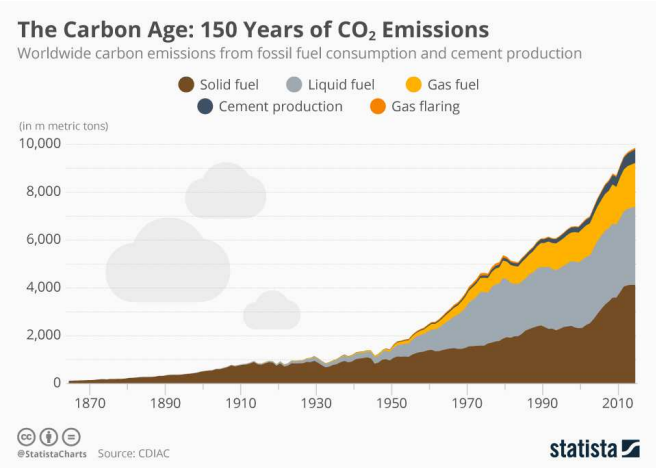


Methane's natural sinks (tundra, seafloor…) are now self-sustaining, given the warming we've achieved with CO_2 emissions. Even stopping our massive fracking leakage is no longer capable of stopping methane-sink releases (fossil-fuel production, transport and use; decay of organic matter in wetlands, tundra and ocean sediments; and as a byproduct of digestion by ruminants).

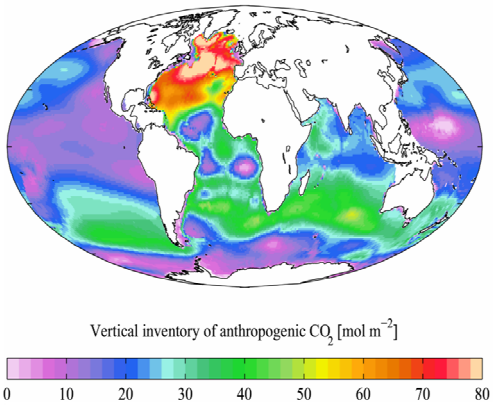
Now methane is ~1.7ppm in air, but is >80 times worse a GHG than CO_2 upon release, so adds over 140ppm CO_2 equivalent to all GHG emissions, which are now growing >412 + 140 = 550ppm (CO_2 equivalent, ignoring other industrial/agricultural chemical emissions like refrigerants, fertilizers, etc.

We've about doubled the carbon-related GHG content of Earth' atmosphere since Keeling began measuring CO_2 in 19957. Of course, water vapor is the dominant GHG in

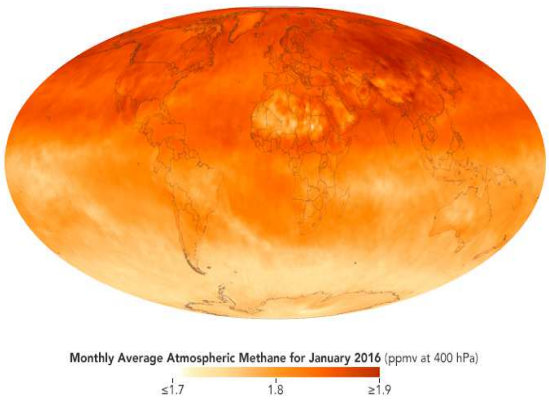
Earth's air and warming of seas especially stimulates its increase and heat transport by expanding atmospheric Hadley Cells away from the Equator. We don't know when/if the cycle we've started will stop with livable conditions. A similar CO_2-driven event occurred ~50 million years ago: https://tinyurl.com/2h6v3kz8



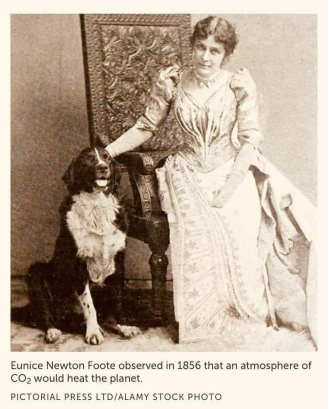
CO_2 in oceans…

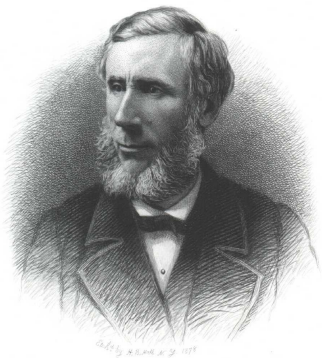


Methane in air…



1850s scientists (Foote & Tyndall) studying CO_2 as warming air via sunlight…


Eunice Newton Foote observed in 1856 that an atmosphere of CO_2 would heat the planet.
PICTORIAL PRESS LTD/ALAMY STOCK PHOTO



She found, that methane would as well. John Tyndall studied the effects of infrared radiation in warming gasses, like CO_2.