Climate change, human sources of energy dispersion in the atmosphere and volcanic & meteoritic events, a new hypothesis

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Abstract : This letter suggests an alternative hypothesis for climate change, based on human energy and the greenhouse effect of volcanic and meteoritic tephras. It contradicts claims that volcanic eruptions lead always to a global decrease of temperatures and that carbon emissions are the causal mode for the major temperature increase since 1979.

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The link between CO2, greenhouse gases in general and temperature increases in the globe is arduous to find. A rapid statistical analysis allows to discard it because during the 1880-1909 period, whereas temperatures have decreased the CO2 emissions have started to increase, and during the 1945-1976 period, while they have accelerated, temperatures stayed even.

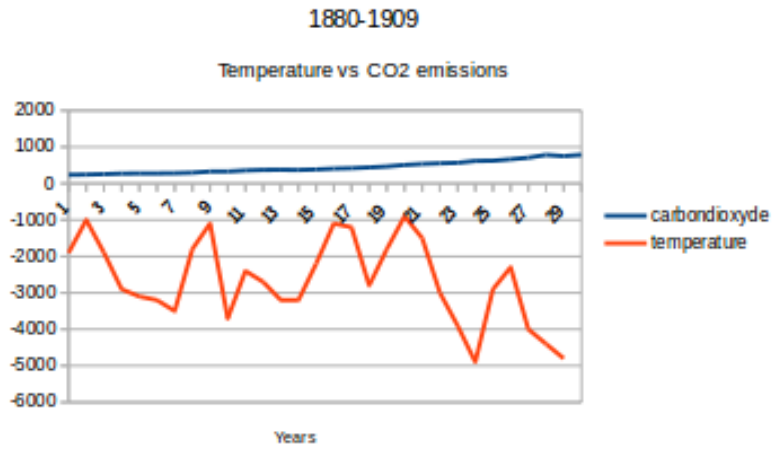

*Fig 1, with carbon emissions in million metric tons of CO2 and with temperatures amplificated *100*

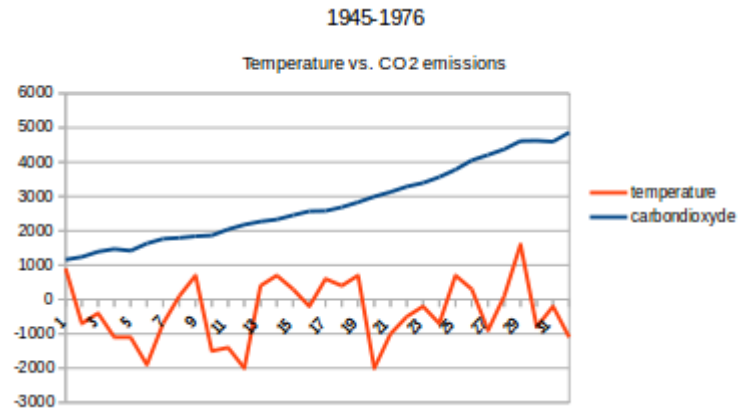

*Fig 2, with carbon emissions in million metric tons of CO2 and with temperatures amplificated *100*

A chi-square test of independence shows independence of the CO2 emissions and global land-ocean temperature index over the full 1880-2012 period (the chi-square result is highly negative, -632206,111). It becomes highly positive (+450975,431) and thus far above the requirement for correlation only by adding 2013 and 2014 (the last years of data available for CO2 emission calculations in the source used).

I propose major volcanic eruptions (and, to a lesser extent, powerful meteoritic impacts) as an explanation for the climate increase under the anthropocene. Human industry dissipates elevated amounts of energy (including light, see on this Luo et al 2003) in nature. Heat from e.g. power plants, siderurgy, cars and other motors, is kept under the greenhouse by the accumulation of tephras and ash. Lights also provide kinetic energy to the tephras. In the carbon emissions - climate change hypothesis the gases in question impede sun energy from coming out but not from entering, which raises a question mark. The volcano-temperature decrease hypothesis do not take into account the increase of temperature after the Novarupta 1912 VEI6 eruption and the 1980-1982 evolution after St Helens and El Chichon (both VEI5). The ash of the Novarupta volcano has spread entirely in the Northern Hemisphere which was and still is much more industrialized than the South. The Tunguska event too happened in the Northern Hemisphere in 1908. An alternative hypothesis for the 1991-1993 decrease in temperatures is the reduction of military training (as the constant explosion of bombs represents an input to global temperatures) as well as the early 1990s economic recession. This hypothesis may also be suggested for the 1939-1945 relative high in temperatures, as armor piercing shells, incendiary and explosive bombs producing up to 3000 °C were widely used during the entire conflict and industry had to be in general extremely active to ensure the production output for war, with more heat losses in the atmosphere ensuing.
Human energy intakes in fly ash and tephra logically lead to an increase in the duration of their stay in the atmosphere. Photons in this regard may have a particular contribution and explain the difference between the post-1883 Krakatoa decrease of temperatures and the 20th-21th century dynamics – Fouquet and Pearson show the use of light in the UK to increase exponentially between 1800 and 1975, and outside lightbulbs, more powerful than gas lighting, were progressively deployed at the end of the 19th century. It also must of course be noted that both the Tambora 1815 VEI7 and Krakatoa 1883 VEI6 happened near the Equator and thus spread many of their ash in the Southern Hemisphere, and in this regard the particular contribution of the Novarupta 1912 and Tunguska 1908 events is more easily explained. The progressive fallout of tephras from the major events of the first part of the century (the 1902 Santa Maria VEI 6 and the 1932 Cerro Azul VEI6 eruptions must be added) and the end of World War 2 meant an immediate stabilisation of temperatures. The Vietnam War, intense as it has been, was not fought during a period of tephra accumulation in the atmosphere, and the Gulf War happened months before the Pinatubo and Hudson eruptions.

I conclude that public policy should focus on energy losses in bulk and forget about carbon emissions (which also have the benefit of producing feedstock for photosynthesis and thus growth of vegetation). This involve a significant work on energy savings instead of the current negotiations over carbon emissions.

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