Sustainability in Environment
ISSN 2470-637X (Print) ISSN 2470-6388 (Online)
Vol. 5, No. 3, 2020
www.scholink.org/ojs/index.php/se

Original Paper

Experimental Proof that Carbon Dioxide does NOT Cause Global Warming

Burl Henry[1*]

[1] IBM Corp

[*] Burl Henry, IBM Corp (Retired)

Received: August 8, 2020 Accepted: August 25, 2020 Online Published: August 31, 2020

doi:10.22158/se.v5n3p91 URL: http://dx.doi.org/10.22158/se.v5n3p91

Abstract

Multiple instances of reductions in atmospheric Carbon Dioxide (CO2) and Sulfur Dioxide (SO2) levels were examined, and it was found that the only climatic effect was from reduced levels of anthropogenic SO2 aerosol pollution in the atmosphere. There were no instances of the hypothesized cooling from reduced CO2 levels.

Keywords

climate change, global warming, recession warming, volcanic cooling, SO2 aerosol effects

1. Introduction

Albert Einstein's "General Theory of Relativity" was published in 1915, and was just an unproven theory until it was tested and proven to be correct. The test involved determining whether the observed position of a distant star would shift, as its light passed by close to the gravity of our sun, as should be observable during a total eclipse. The theory was tested during the total eclipse of 1919, and the predicted shift occurred, thus validating his theory.

In sharp contrast, the "Greenhouse Gas" effect, first proposed by Joseph Fourier about 200 years ago, and later worked on by John Tyndall, Svante Arrhenius, and others, has never been tested and empirically validated on a global scale. Thus, it is still just a hypothesis. It has long been thought that such a test would be impossible, given the size of our globe and the volume of our atmosphere. This, however, appears not to be correct.

Collectively, over the years, the peoples of Earth have spent trillions of dollars in an effort to reduce or control the amount of man-made (anthropogenic) CO2 emissions into the atmosphere, in the belief that rising levels of CO2 are responsible for the increases in average anomalous global temperatures that have occurred since the late 1970"s, and if not contained, will cause even more warming.

If warming due to increasing levels of CO2 in the atmosphere were correct, then it would follow that decreased levels of CO2 in the atmosphere would necessarily have a cooling effect.

The obvious test, then, would be to reduce the amount of CO2 in the atmosphere, and to observe whether the expected cooling occurs.

2. Method

As it turns out, this experiment has already been performed multiple times since the start of the Industrial Revolution (circa, 1850).

The "experiments" in question are American business recessions, where reduced Industrial activity results in the temporary closure of factories, foundries, smelters, etc. (earlier, this would have included coking facilities, and steam engines powering factories, trains, steam boats, steam ships, etc.).Cessation of these activities results in fewer emissions of CO2 and SO2 (both from the burning of fossil fuels) into the atmosphere. Since most emitting sources are normally in essentially constant operation, those emissions that settle out are quickly replaced, so that they are always present in the atmosphere, until they are shut down.

3. Result

CO2 was found to have no climatic effect. Instead, Earth's temperatures were found to be extremely sensitive to changing levels of SO2 aerosols in the atmosphere, of either volcanic or anthropogenic origin.

4. Discussion

The climatic effect of reduced of reduced industrial activity is examined in the following Figure 1, which is a listing of all American business recessions since 1857, together with the anomalous temperature changes that occurred for each recession, for which data was available. Volcanic data included is from "Volcanoes of the World" third edition (2010).

RECESSION-INDUCED El NINOS

Dates of Recessions and Temp. Changes #		El Nino Dates	Reason for no El Nino
1853 Nov-1854 Dec			Shiveluch 1854 (VEI5)
1857 Jun-1858 Dec			Vulcan de Fuego 1857 Jun
1860 Oct-1861 Jun		1862	
1865 Apr-1867 Dec		1867-1868	
1869 Jun-1870 Dec			Unknown 1869 volcano (Temp. Decreased)
1873 Oct-1879 Mar	(-)	LA NINA 1873-1876	Grimsvotn 1873 Jan, Askja 1875 Mar (VEI5)
1882 Mar 1885-May	(-)	LA NINA 1881-1882	Fuego 1880 Jun, Krakatoa 1883 Aug (VEI6)
1887 Mar-1888 Apr	(+1.03)	1888 Feb-1889 Apr	
1890 Jul-1891 May	(-)	LA NINA 1889-91 Jun	Suwanose-jima 1889 Oct
1893 Jan-1894 Jun	(-)	LA NINA 1892 Jun-1895 Jan	Colima 1890 Feb, Calbuco 1893 Jan
1895 Dec-1897 Jun	(+0.55)	1896 May -1897 May	
1899 Jun-1900 Dec	(+0.17)	1899 Dec-1900 Oct	
1902 Sep-1904 Aug	(+0.12)	1902 Apr-1903 Apr	
1907 May-1908 Jun	(-)	LA NINA 1906-1907	Vesuvius 1906 May, Ksudach 1907 May VEI5
1910 Jun-1912 Jan	(+0.96)	1910 Nov-1912 May	Lolobau 1911 (Jun)
1913 Jan-1914 Dec	(+0.20)	1913 Oct-1914 Apr	
1918 Aug-1919 Mar	(+0.19)	*1918 Aug-1919 Sep	Agrian 1917 Apr
1920 Jan-1923 Jul	(+0.08)		Katia 1918 Oct, Kelut 1919 May
1923 May-1924 Jul	(+0.16)	1923 Aug-1924 Mar	
1926 Oct-1927 Nov	(-)	*1925 Jul-1926 Aug	Raioke 1924 Feb, Irimote-jima 1924 Oct
1929 Aug-1933 Mar	(+0.10)	*1930 Jun 1931 Jul	Komaga-take 1929 Jun
1937 May-1938 Jun	(+0.45)		Rabaul 1937 May
1945 Feb-1945 Oct	(+0.11)		Paricutin 1943 May > 3 years
1948 Nov-1949 Oct	(+0.20)		Ambrym 1950 Dec
1953 Jul 1954 May	(-)	*1953 Jan-1954 Mar	Bagana 1952 Mar, Spurr 1953 Jul
1957 Aug-1958 Apr	(+0.24)	*1957 Mar-1959 Apr	
1960 Apr-1961 Feb	(+0.21)		6 Mt more SO2, 1960-1961
1969 Dec-1970 Nov	(-)	*1969 Jul-1970 Feb	Fernandina 1968 Jun
1973 Nov-1975 Mar	(-)	LA NINA 1973-1976	Titia 1973 Jul, Volcan de Fuego 1974 Oct
1980 Jan-1980 Jul	(+0.12)	*1979 Dec-1980 Oct	Sierra Negra 1979 Nov
1981 Jul-1982 Nov	(-)	*1982 Mar-1983 Jul	Alaid 1951 Apr. Pagan 1951 May
1990 Jul-1991 Mar	(+0.06)	*1991 Apr-1992 Jul	Banda 1998 May
2001 Mar-2001 Nov	(+0.17)	2002 May-2003 Mar	
2007 Dec-2009 Jun	(-)	LA NINA 2007 Jun-2008 Jul, 2008 Oct-2009 Apr	Rabaul 2006 Oct, Chiaten 2008 May, Okmok 2008 Jul, Kasatochi 2008 Aug, Alu-Dalafilla 2008 Nov

The temporary warming caused by a recession results in an El Nino unless it occurs during the cooling following a VEI4 or larger eruption, or from increased levels of anthropogenic SO2 emissions. The time to the onset of an El Nino varies because of differing ENSO sea surface temperatures at the start of the recession.

#Temp. change is the average temp. during the recession, with respect to the average temp. of the prior 3 months (NASA/GISS global land-ocean temp. anomalies available only since 1880).

*These recessions did not show a temperature increase over the prior 3 months because of the normal cooling effect of eruptions that occurred about a year earlier. In most instances, the recession warming prevented them from forming the usual La Nina.

Figure 1. Recession-Induced El Ninos

Examination of the Figure shows no instances where any cooling occurred. Instead, only temperature increases due to decreased amounts of SO2 aerosol pollution in the atmosphere are observed. This decrease results in cleaner air, which allows the sun's rays to strike the Earth's surface with greater intensity, causing increased warming.

Since no cooling was observed, it can be concluded that CO2 has no climatic effect, if the CO2 reductions during the recessions were sufficiently large enough to have had an effect.

To determine typical amounts of CO2 reductions during industrial recessions, data from the American Environmental Protection Agency was examined. Their records of CO2 emissions are divided into five sectors (Commercial, Industrial, Residential, Transportation, and Electric Power), by State, and are available from 1990 through 2019.Three of the recessions occurred during the period where industrial CO2 data is available.

For the industrial sector, during the 1990-1991 recession, CO2 emissions for the eight-month period 1990 Jul-1991 Mar fell by 32.2 Million Metric tons (35.5 Megatons), with respect to the prior year. For the eight-month 2001 Mar-2001 Nov recession, emissions fell by 12 MMTs (14.1 Mts), with respect to 2000, and for the 18-month recession of 2007 Dec 2009 Jun CO2 emissions fell by 55.7 MMTs (61.4 Mts.), with respect to 2006.Although not examined, it would be expected that the industrial shutdowns would also have resulted in some reduction of CO2 emissions from other sectors, such as Transportation and Electric Power.

Similar SO2 data by sector is not available from the EPA. However, industrial sector (and total) SO2 data is available from the Community Emissions Data System (CEDS) listings of reactive atmospheric gasses.

Some examples: for the 1937 May-1938 Jun recession, SO2 levels fell by 0.8 Mts, with respect to 1936; for the 1948 Nov-1949 Oct recession, SO2 levels fell by 1.08 Mts, with respect to 1947; for the 1957 Aug-1958 Apr recession, SO2 levels fell by 0.35 Mts, with respect to 1956.For the 1990 Jul-1991 Mar recession, SO2 levels fell by 0.31 Mts, with respect to 1989.And for the 2007-9 recession, SO2 levels fell by 0.43 Mts.In every instance, SO2 levels increased after the end of the recession.

Although the tonnage of decreases in CO2 emissions during a recession, were, on average, for these representative examples, at least 60X greater than those of SO2, only the decrease in SO2 emissions affected the climate. Clearly, the decrease in CO2 emissions had no effect.

With respect to the three Depressions identified in Figure 1[1873 Oct-1879 Mar (65 months)]; [1920 Jan-1921 Jul (19 mo.)], and [1929 Aug-1933 Mar (56 mo.)], their industrial sector SO2 reductions were .026, 1.1, and 1.5 Mts. TOTAL changes in anthropogenic SO2 emissions for those years were (+0.09 Mts), (-5.0 Mts.), and (-13 Mts.).The much cleaner air of the 1930's depression era was responsible for its notably higher temperatures.

Figure 2, below, illustrates the global extent of SO2 circulating in our atmosphere. This NASA product shows an example of the forecast distribution of SO2 in Earth's atmosphere, for June 17, 2020.Its presence acts as a protective shield which reduces temperatures underneath, so that any diminution of

its presence will cause temperatures to rise, as during a recession.

Note that the polar regions are largely free of circulating SO2 aerosol emissions, which may explain the accelerated warming of those areas.

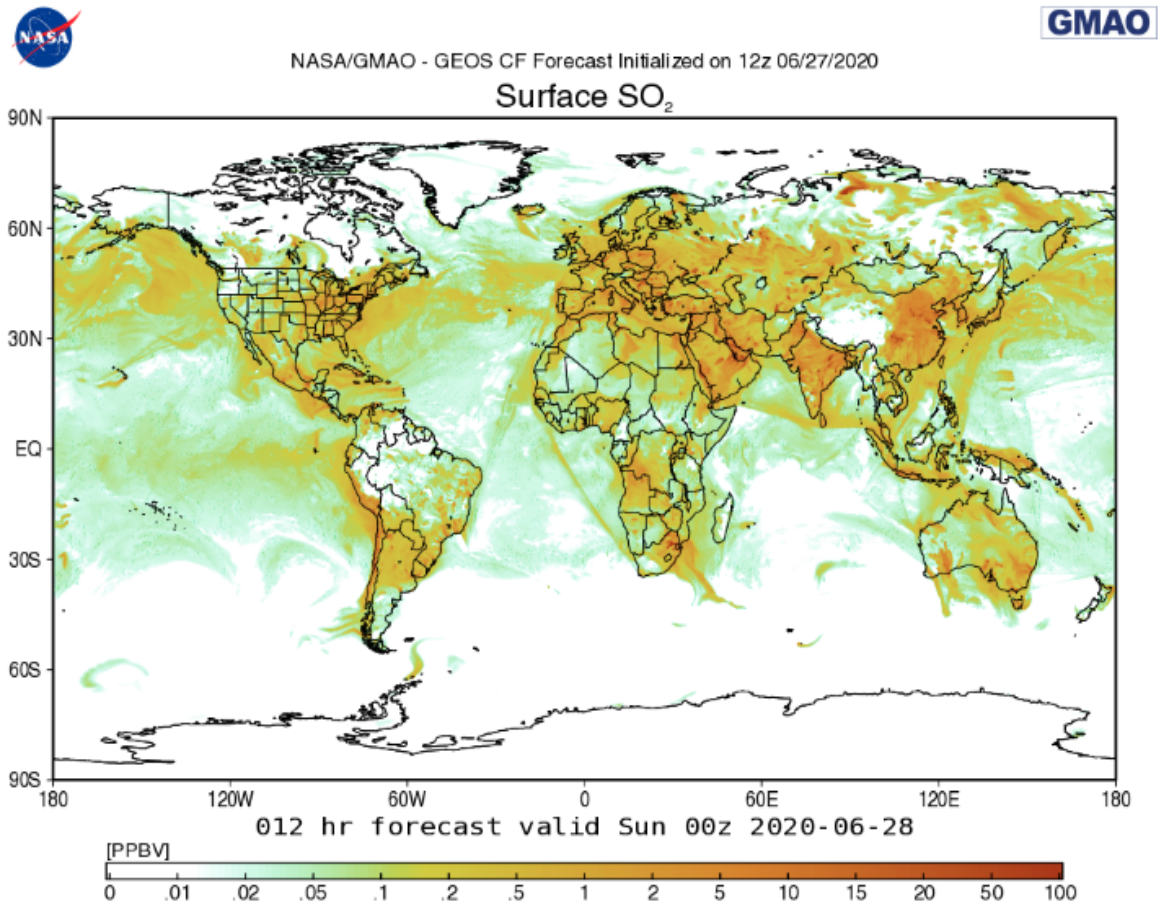

Figure 2. Example of the Global Distribution of SO_2 in the Atmosphere

The following Figure 3 is an actual SO2 scan from the Aura/OMI satellite. Note the SO_2 emissions from Mauna Loa, and the background haze of SO2 over the Pacific Ocean surrounding the islands. Being a shield volcano, its SO2 emissions were not injected into the stratosphere, in this instance, and this June 2013 event does not appear on the Smithsonian list of volcanic eruptions.

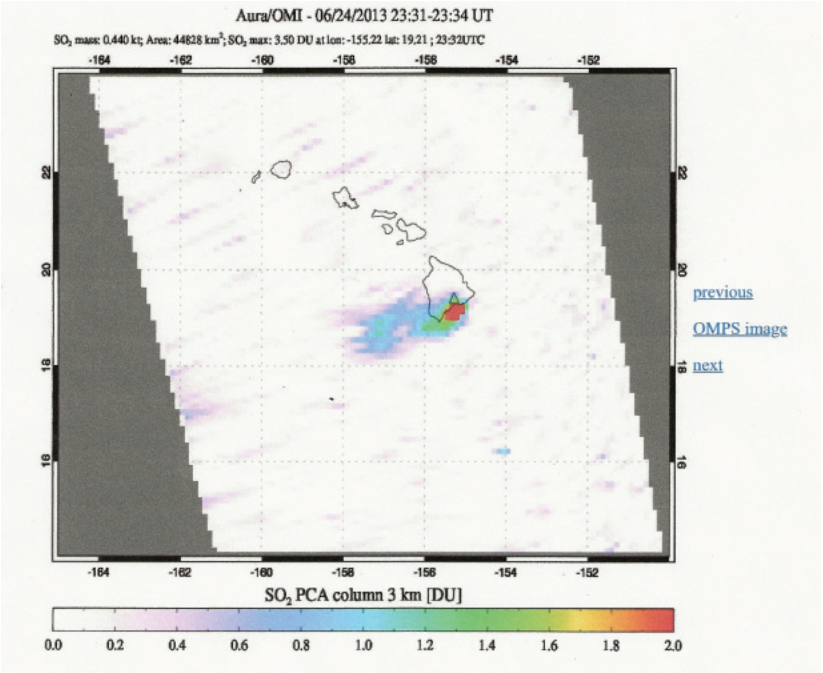

Figure 3. A Regional Image of SO2

5. Conclusion

Multiple instances\of decreases in the amounts of CO2 and SO2 emissions into the atmosphere, resulting from American business cycles, were examined. It was found that the ONLY climatic effect was increased temperatures due to reduced SO2 pollution of the atmosphere. The hypothesized cooling effect from reduced CO2 emissions was completely absent.

Therefore, if cooler temperatures are desired, it will be necessary to re-introduce SO2 (or some similar dimming substance) into the atmosphere, ideally high over the ENSO region of the Pacific Ocean. There, prevailing winds would carry it harmlessly around the globe, as now happens with volcanic SO2. Currently, sporadic periods of cooling are being provided by random volcanic eruptions, and/or increased anthropogenic SO2 emissions.

Acknowledgements

Professor Geoffrey N. Blainey, Melbourne, Australia, for encouragement and many helpful comments.

References

Distribution of SO2 in the atmosphere, regional image. (6-24-13). Atmospheric Chemistry and Dynamics. Global Sulfur Dioxide Monitoring home page.

ENSO temps. prior to 1900. (2020). Multivariate ENSO time series from Dec/Jan 1871 to the present.

Global distribution of SO2 in the atmosphere. (6-27-20). Global Modeling and Assimilation Office (GMAO).

Global Land-Ocean temperature index in 0.01 degrees Celsius. (1880-2019). NASA/GISS.

List of cold and warm episodes by seasons from 1950-present. (2020). National Weather Service, Climate Prediction Center.

List of recessions in the United States. (n.d.). Wikipedia.

Long-term index of El Nino (red) and La Nina Events (blue). (1900-1948). Tisdale, Bob (2010)

United States CO2 emissions by sector. (2019). *EPA "State Energy CO2 Emissions"*.

United States SO2 emissions by sector. *Community Emissions Data System (CEDS), Supplemental Data*. (2018). Retrieved from https://doi.org/10.5194/gmd-11-369-supplement

Volcanoes of the World (3rd ed.). (2010). Siebert, Lee, et al.