

THE CATASTROPHIC ANTHROPOGENIC GLOBAL WARMING (CAGW) AND THE HUMANMADE CLIMATE CHANGE CRISES ARE PROVED FALSE

By Allan M.R. MacRae, B.A.Sc.(Eng.), M.Eng.

INTRODUCTION.

Let's assume that the CAGW is a scientific hypothesis and can be falsified. This concept is important, because the scary humanmade "Climate Change" hypothesis can mean anything and everything to climate alarmists – warmer, colder, wetter, drier, windier, calmer and thus cannot be falsified – it is Karl Popper's "non-falsifiable hypothesis", or in layman's terms, it is non-scientific nonsense. When it is scientifically framed, the Catastrophic Humanmade "Climate Change" hypothesis can also be falsified, as discussed herein.

"A theory that is not refutable by any conceivable event is non-scientific." – Karl Popper

To be capable of falsification, the CAGW hypothesis must be adequately defined:

The CAGW hypothesis makes the following assumptions and predictions:

Atmospheric CO₂ is continuing to increase due to humanity's accelerating combustion of fossil fuels and increasing atmospheric CO₂ is the primary driver of global temperature, and that increase in CO₂ is causing or will cause catastrophic global warming. (* See Note "B" below)

CATASTROPHIC ANTHROPOGENIC GLOBAL WARMING (CAGW) HYPOTHESIS - DEFINITION:

Catastrophic – the predicted outcome must be severely harmful to humanity and the environment.

Anthropogenic – the predicted outcome must be caused by humanity, not by nature.

Global – the predicted outcome must be worldwide in extent.

Warming – the predicted outcome must involve catastrophic warming of the climate.

There are numerous highly credible observations that falsify the CAGW hypothesis and many are listed herein, but as Albert Einstein famously stated "One would be enough".

CATASTROPHIC: THE ALLEGED WARMING IS NOT CATASTROPHIC.

Based on the evidence, Earth's climate is relatively INsensitive to increased atmospheric CO₂ – climate computer models greatly exaggerate future CO₂-driven warming and there is no catastrophic global warming crisis.

Both Christy & McNider (2017) and Lewis & Curry (2018) proved that climate sensitivity to increasing CO₂ is too low to cause dangerous warming. To calculate an upper-bound on climate sensitivity to CO₂, both papers made the same very conservative assumption:

Both papers assumed that ALL the observed global warming is ascribed to increasing atmospheric CO₂, and then calculated the maximum climate sensitivity to a hypothetical doubling of atmospheric CO₂ of only about 1 degree C, which is too low to cause dangerous global warming.

1.

Christy and McNider (2017) analysed UAH Lower Troposphere data since 1979:

“Satellite Bulk Tropospheric Temperatures As A Metric For Climate Sensitivity”

By John R. Christy and Richard T. McNider

Asia-Pac. J. Atmos. Sci., 53(4), 511-518, 2017

https://wattsupwiththat.files.wordpress.com/2017/11/2017_christy_mcnider-1.pdf

2.

Lewis and Curry (2018) analysed HadCRUT4v5 Surface Temperature data since 1859:

“The Impact of Recent Forcing and Ocean Heat Uptake Data on Estimates of Climate Sensitivity”

By Nicholas Lewis and Judith Curry

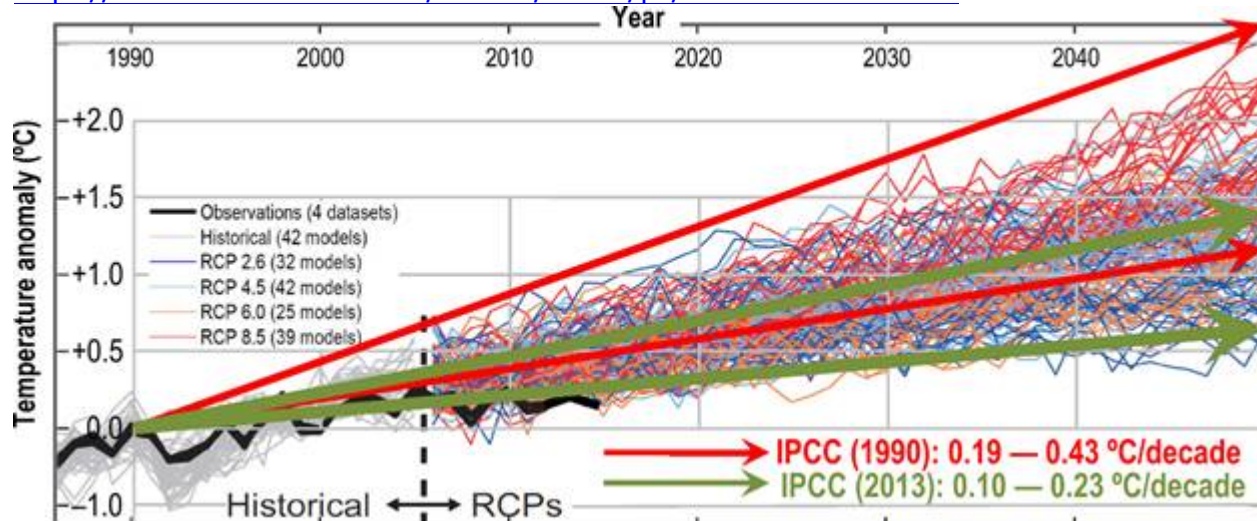
<https://journals.ametsoc.org/doi/10.1175/JCLI-D-17-0667.1>

Climate computer models used by the IPCC and other global warming alarmists employ climate sensitivity values much higher than 1C/doubling, in order to create false fears of catastrophic global warming.

3. ++

The climate computer models created by global warming alarmists consistently over-predict warming, such that the global warming alarmists have made scores of failed scary warming predictions to date.

<https://www.sciencedirect.com/science/article/pii/S2095927316305448>



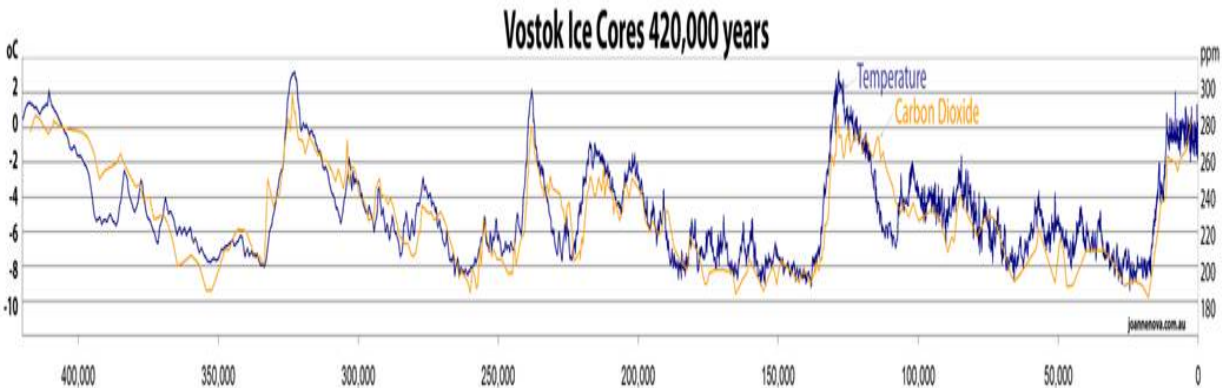
ANTHROPOGENIC: THE ALLEGED WARMING IS NOT ANTHROPOGENIC.

Atmospheric CO2 changes LAG atmospheric temperature changes at all measured time scales, and the CAGW hypothesis assumes that increasing atmospheric CO2 is the primary driver of increasing atmospheric temperatures, such that CO2 changes should LEAD temperature changes. Thus the CAGW hypothesis assumes that the future causes the past, which is false.

4.

Atmospheric CO2 changes LAG temperature changes by ~ 800 years in the ice core record, on a long time scale.

<http://joannenova.com.au/global-warming-2/ice-core-graph/>

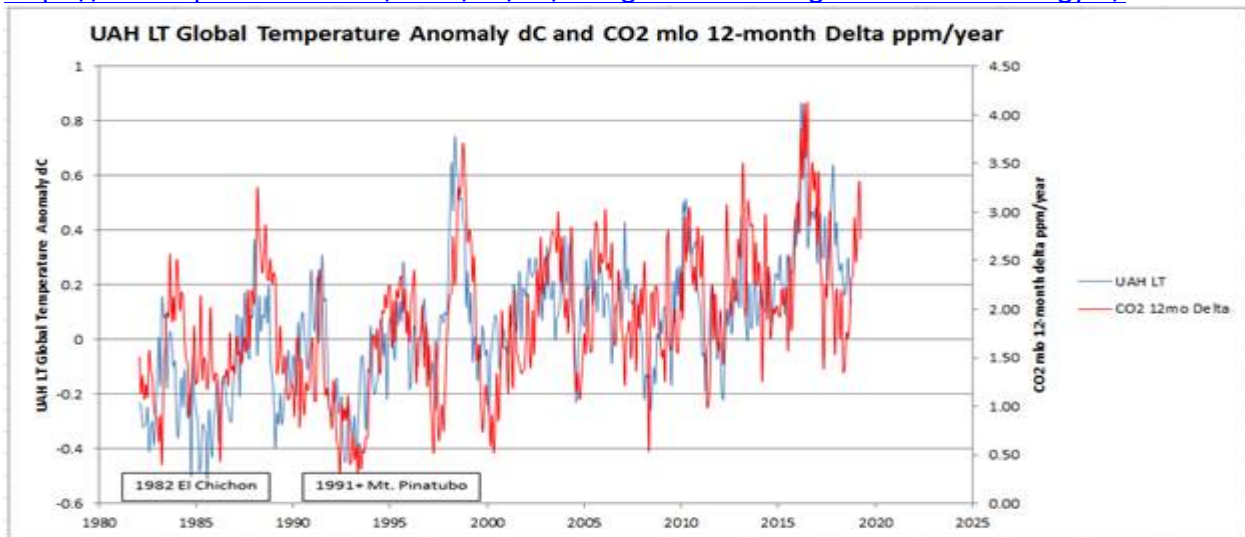


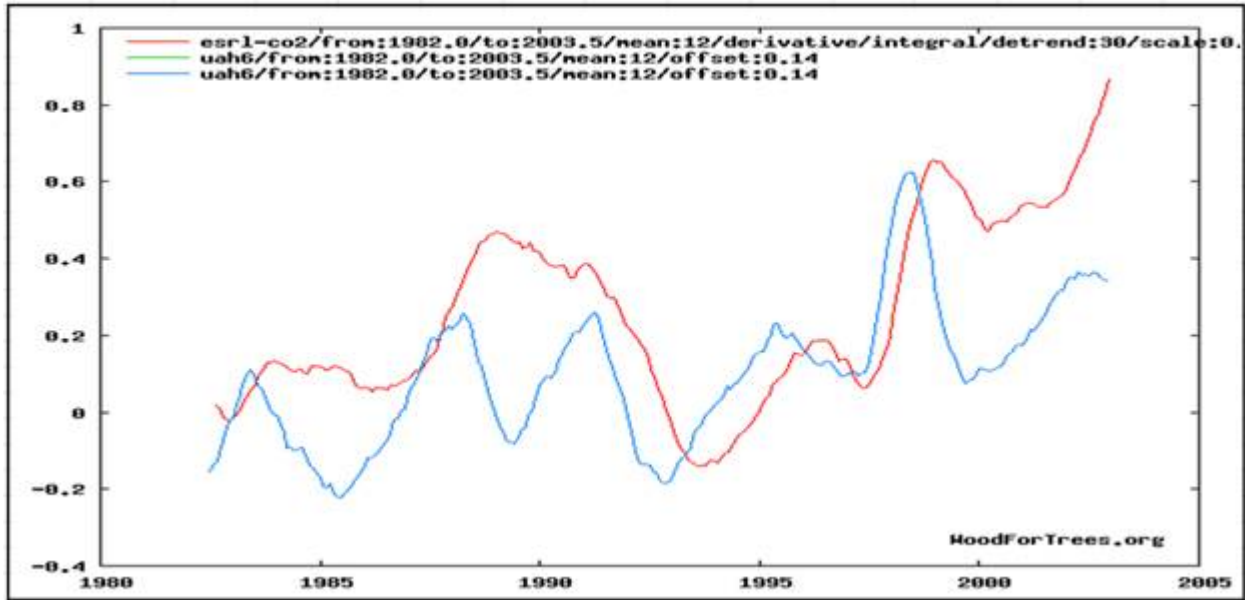
5.

Atmospheric CO2 changes LAG temperature changes by ~ 9 months in the modern data record on a short time scale. Papers by MacRae (2008, 2015 and 2019) explained the detailed sequence of events that leads to the ~ 9 -month lag of CO2 changes after temperature changes. "CO2, Global Warming, Climate and Energy"

By Allan M.R. MacRae, B.A.Sc., M.Eng., June 15, 2019

<https://wattsupwiththat.com/2019/06/15/co2-global-warming-climate-and-energy-2/>





6.

In 2013, a similar observation was made by Humlum, Stordahl and Solheim - that atmospheric CO₂ changes lag global sea surface and air temperature changes by 9-12 months.

"The phase relation between atmospheric carbon dioxide and global temperature"

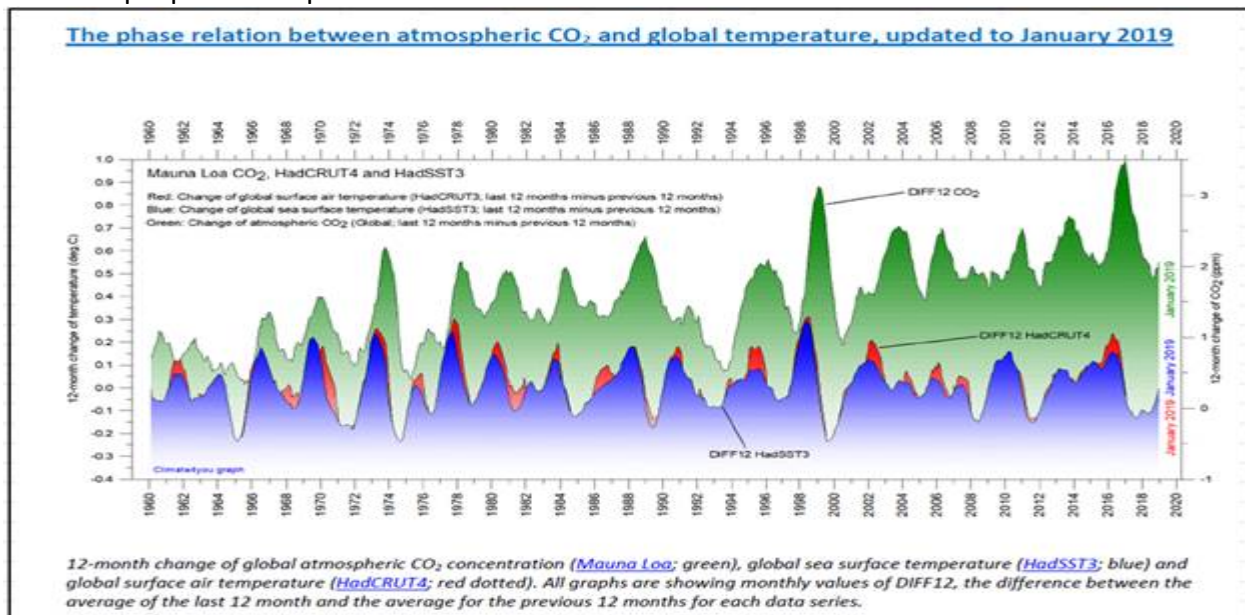
Global and Planetary Change, Volume 100, January 2013

<https://www.sciencedirect.com/science/article/pii/S0921818112001658>

a. Changes in global atmospheric CO₂ are lagging 11–12 months behind changes in global sea surface temperature.

b. Changes in global atmospheric CO₂ are lagging 9.5–10 months behind changes in global air surface temperature.

c. Changes in global atmospheric CO₂ are lagging about 9 months behind changes in global lower troposphere temperature.



Richard S. Courtney kindly notified me of earlier papers by Kuo (1990) and Keeling (1995) that observed the lag of CO2 after temperature. The important observations of these two papers have been suppressed or ignored by the proponents of the CAGW hypothesis.

7.

“Coherence Established Between Atmospheric Carbon Dioxide and Global Temperature”

By Cynthia Kuo, Craig Lindberg & David J. Thomson

Nature volume 343, pages 709–714, February 22, 1990

<https://www.nature.com/articles/343709a0>

8.

“Interannual Extremes in the Rate Of Rise Of Atmospheric Carbon Dioxide Since 1980”

By C. D. Keeling, T. P. Whorf, M. Wahlen & J. van der Plichtt

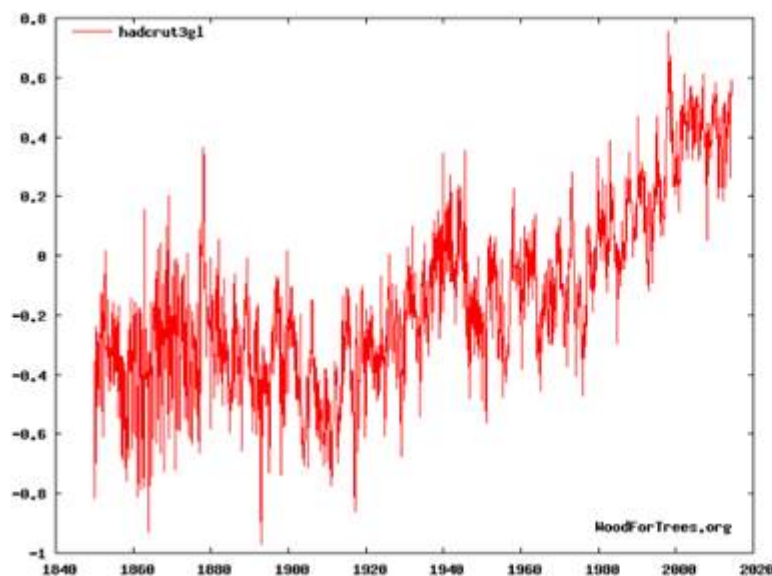
Nature volume 375, pages 666–670, June 22, 1995

<https://www.nature.com/articles/375666a0>

9.

Global temperatures cooled from ~1940 to 1977 despite the fact that fossil fuel combustion accelerated strongly starting ~1940 at the onset of WW2.

<http://woodfortrees.org/plot/hadcrut3gl>



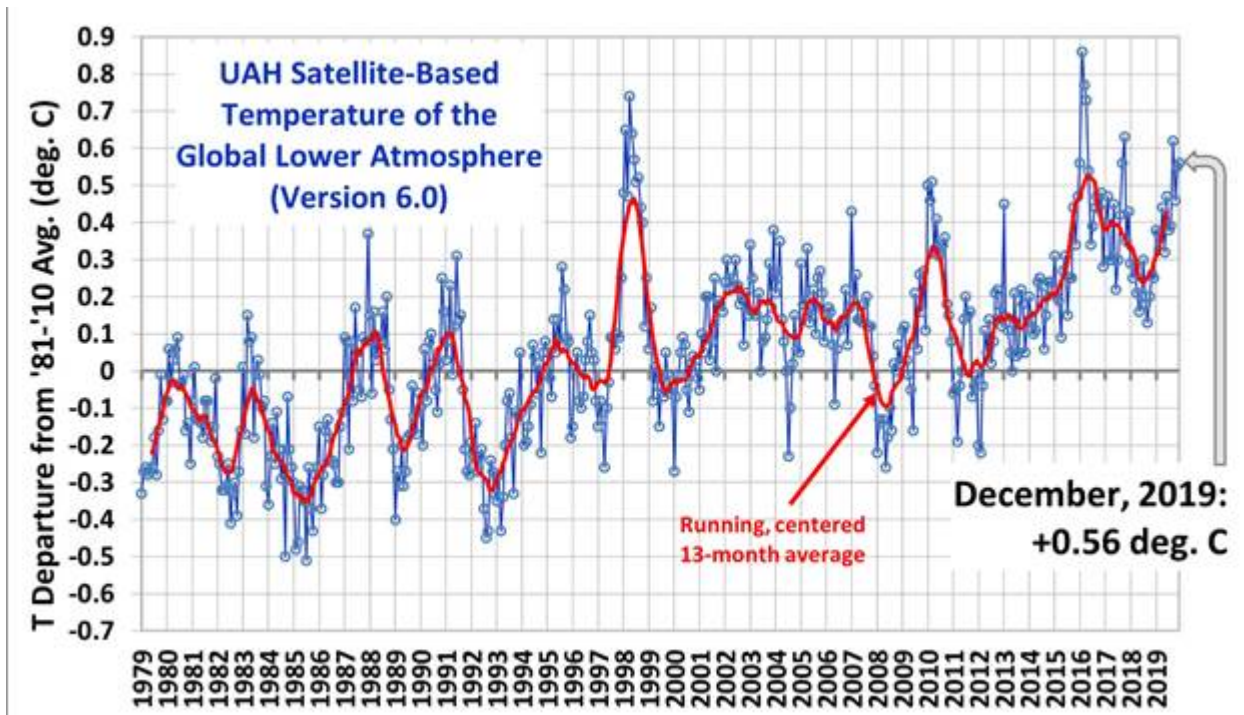
Data source:	
HADCRUT3 unadjusted global mean	
Processing steps	Value
1	
2	
3	
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6	
7	
8	
9	
10	

Plot graph Add series

10.

There was a multi-decadal “Pause” in global average temperatures from ~1987 to ~2013, even as fossil fuel combustion continued to increase.

[https://www.drroyspencer.com/wp-content/uploads/UAH LT 1979 thru December 2019 v6.jpg](https://www.drroyspencer.com/wp-content/uploads/UAH_LT_1979_thru_December_2019_v6.jpg)



Earth's temperature at the multi-century scale correlates with solar activity, as one would expect, and correlates poorly with increasing atmospheric CO₂. Global warming and cooling is almost entirely natural, not humanmade.

11.

In June 2015 Dr Nir Shaviv gave an excellent talk in Calgary – his slides are posted here:

http://friendsofscience.org/assets/documents/Calgary-Solar-Climate_Cp.pdf

Slides 24-29 show the strong relationship between solar activity and global temperature.

Here is Shaviv's 22 minute talk from 2019 summarizing his views on global warming:

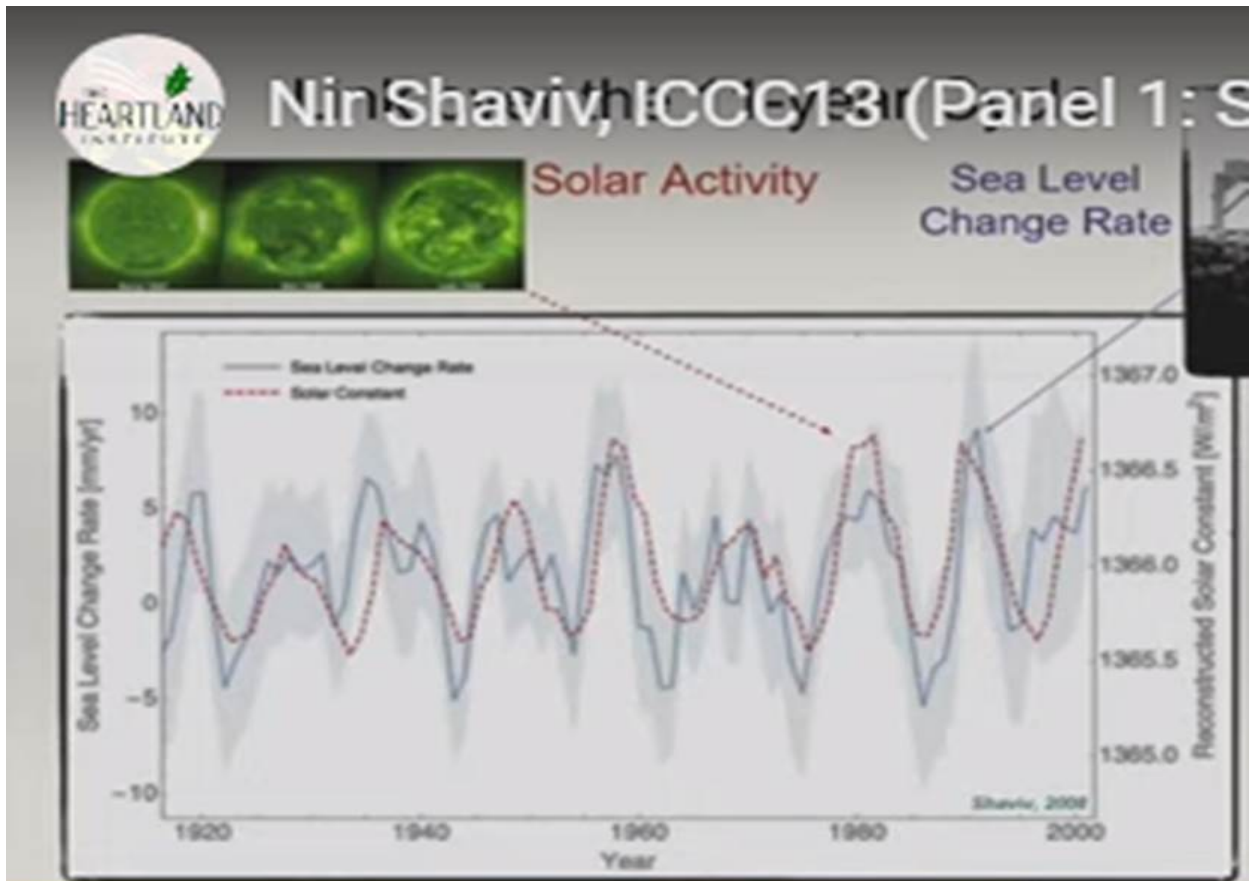
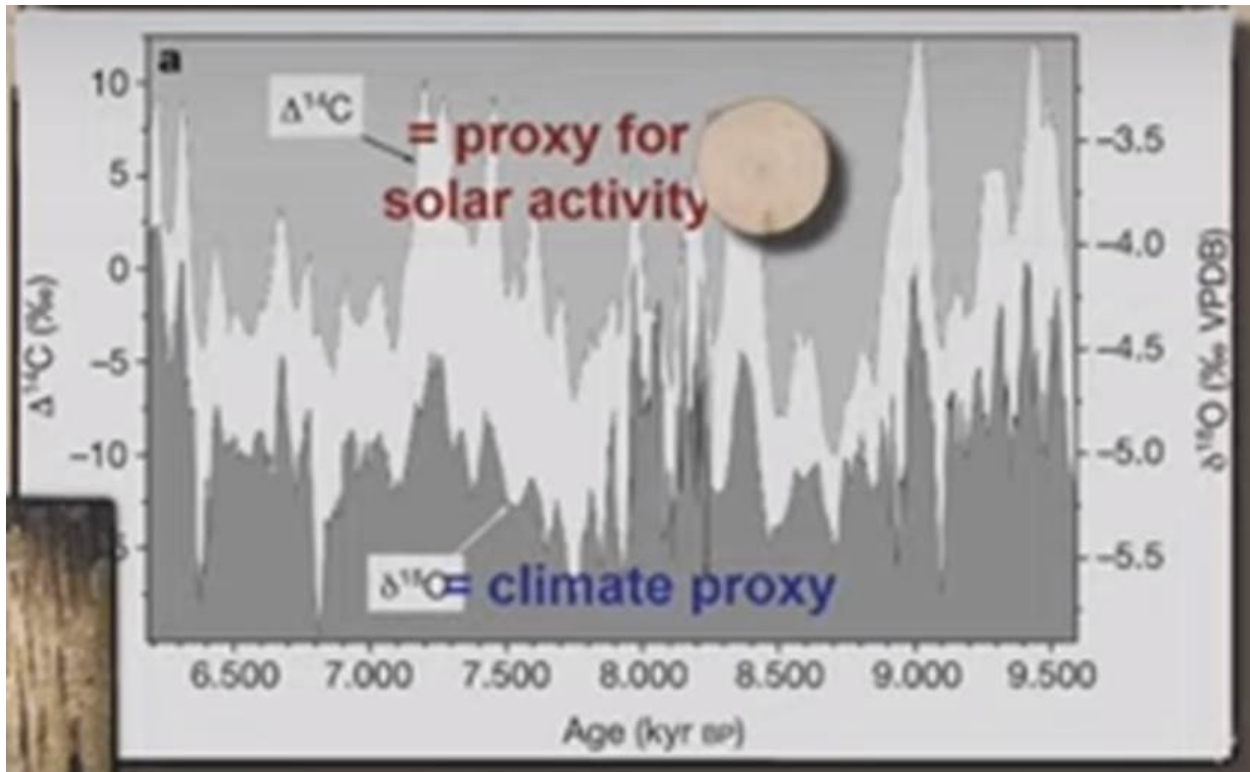
Science Bits, Aug 4, 2019

<http://www.sciencebits.com/22-minute-talk-summarizing-my-views-global-warming>

At 2:48 in his talk, Shaviv says:

“In all cores where you have a high-enough resolution, you see that the CO₂ follows the temperature and not vice-versa. Namely, we know that the CO₂ is affected by the temperature, but it doesn't tell you anything about the opposite relation. In fact, there is no time scale whatsoever where you see CO₂ variations cause a large temperature variation.”

At 5:30 Shaviv displays a figure that shows the close correlation of a proxy of solar activity with a proxy for Earth's climate. Similar close solar-climate relationships follow.



Shaviv concluded that the sensitivity of climate to increasing atmospheric CO₂ is 1.0C to 1.5C/(doubling of CO₂), much lower than the assumptions used in the computer climate models cited by the IPCC, which greatly exaggerate future global warming.

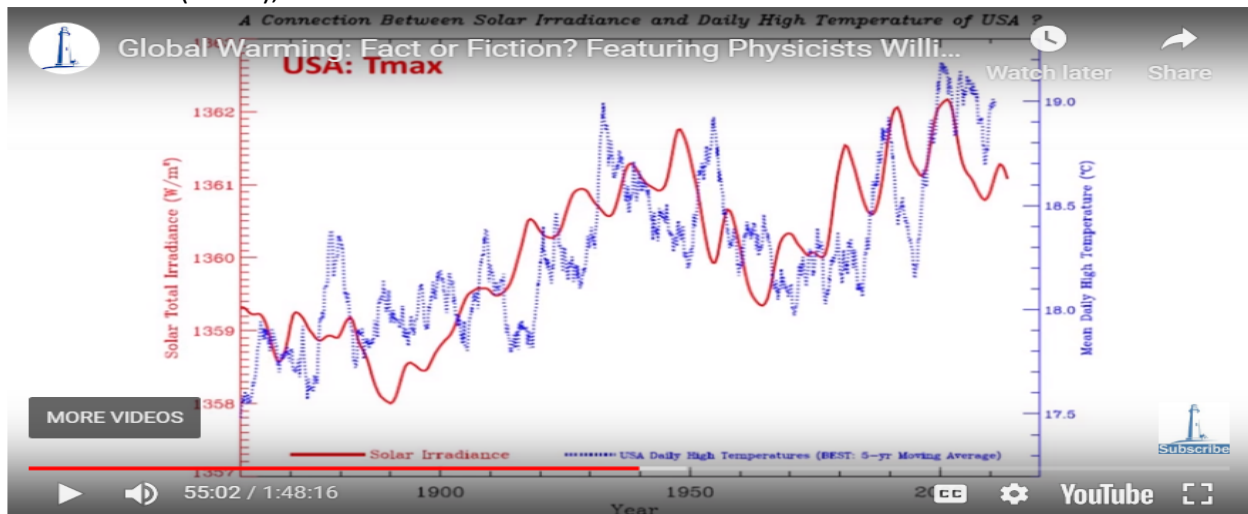
12.

Dr Willie Soon's 2019 video reaches similar conclusions – that the Sun is the primary driver of global climate, and not atmospheric CO₂.

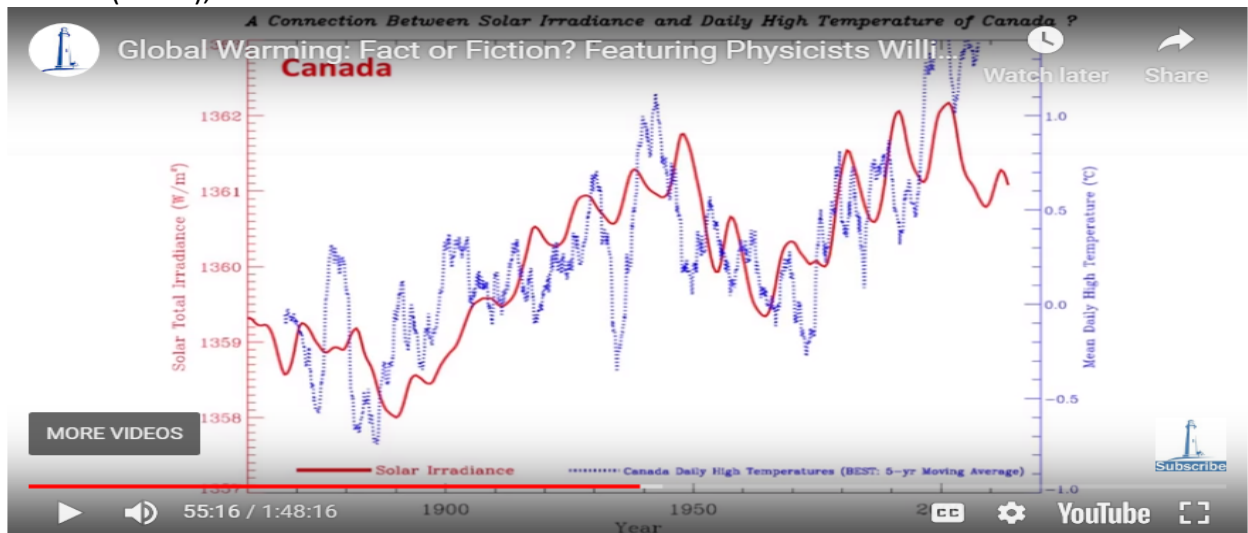
<https://wattsupwiththat.com/2019/09/15/global-warming-fact-or-fiction-featuring-physicists-willie-soon-and-elliott-bloom/>

Soon's best points start at 54:51, where he showed the Sun-Climate relationship and provided his conclusions. There is a strong correlation between the Daily High Temperatures and the Solar Total Irradiance (54:51 of the video):

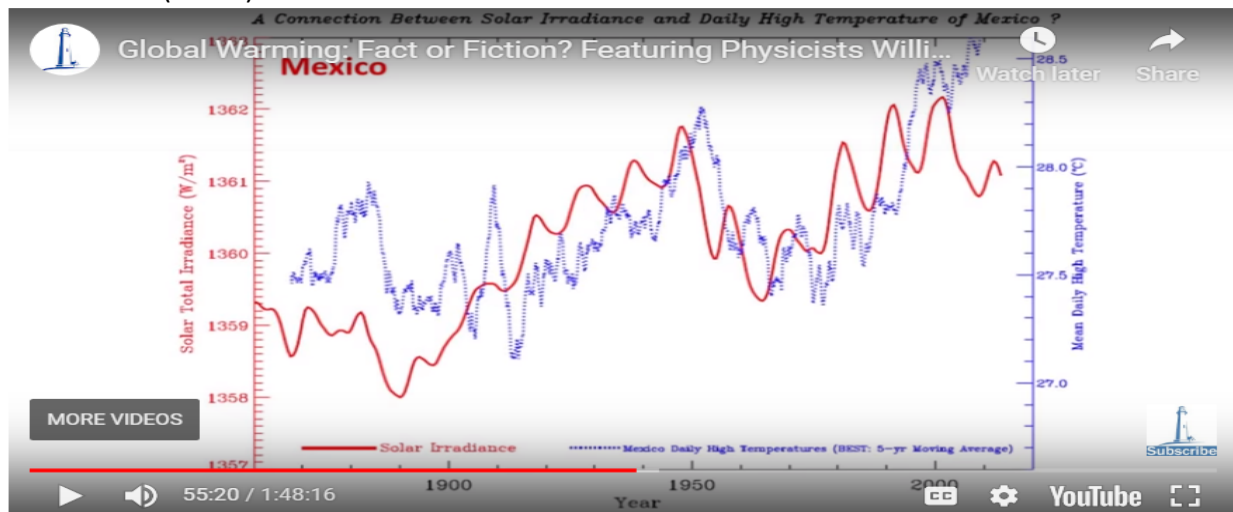
... in the USA (55:02),



Canada (55:16),



and Mexico (55:20).



In Soon's plots, the ~11-year Solar Cycle is also evident in the maximum daily temperatures.

Strong global cooling occurred at the end of Solar Cycle 23 circa 2008, and we can expect even more cooling at the end of Solar Cycle 24 circa 2020. I/we predicted solar-driven global cooling to commence by ~2020-2030 in an article in the Calgary Herald published September 1, 2002.

GLOBAL: GLOBAL CLIMATE CHANGE IS NORMAL AND NATURALLY-CAUSED.

13.

Naturally-caused global climate change is a known reality, since Earth has experienced many warmer and colder periods in geologic time, and all major changes in global climate occurred before humanity started burning large quantities of fossil fuels.

14.

Earth now exists within a series of ~100,000-year glacial periods, currently interrupted by a ~10,000-year warm interglacial. The minor changes in global temperatures that have been observed since the beginning of the Industrial Revolution are predominantly natural and within the normal range of variability during an interglacial.

15.

"It was warmer than today for at least 95% of the last 10,000 years."

- Dr Tim Ball

<https://www.youtube.com/watch?v=mqejXs7XgsU>

16.

"90% of the time since Creation the Earth was warmer than it is now."

- Dr Richard Keen

<https://www.youtube.com/watch?v=mqejXs7XgsU>

WARMING: A WARMER CLIMATE IS SAFER FOR HUMANITY AND THE ENVIRONMENT.

Even if increasing atmospheric CO₂ does cause some mild warming, a moderately warmer world will be a safer world for humanity. Cool and cold weather kills many more people than warm or hot weather, even in warm climates. There are about ~100,000 Excess Winter Deaths every year in the USA, ~10,000 in Canada, and up to ~50,000 per year in Britain. It is clear from historic records that humanity prospers during warm periods, and suffers and dies during cold periods.

17.

“Cold Weather Kills 20 Times As Many People as Hot Weather”

By Joseph D’Aleo and Allan MacRae, September 4, 2015

(Revised and re-issued in 2015 to include Gasparrini et al below)

<https://friendsofsciencecalgary.files.wordpress.com/2015/09/cold-weather-kills-macrae-daleo-4sept2015-final.pdf>

18.

“Mortality risk attributable to high and low ambient temperature: a multicountry observational study”

By Dr Antonio Gasparrini, Dr Yuming Guo, Dr Masahiro Hashizume, Dr Eric Lavigne, Dr Antonella Zanobetti, Dr Joel Schwartz, et al. The Lancet, May 20, 2015

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(14\)62114-0/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)62114-0/abstract)

INCREASED ATMOSPHERIC CO₂ IMPROVES CROP YIELDS AND DELAYS CO₂ STARVATION.

Atmospheric CO₂ is not alarmingly high; it is too low for optimal plant growth and alarmingly low for the survival of carbon-based terrestrial life.

Plants evolved at atmospheric CO₂ concentrations of 2000 ppm and greater, and many grow best at about 1200 ppm CO₂ - about 3 times current levels in the atmosphere. That is why greenhouse operators maintain 1000-1200 ppm CO₂ in their greenhouses. Crop yields have increased significantly in recent decades, and increasing atmospheric CO₂ has been one of the major causes of these increased crop yields.

19.

“Carbon Dioxide is Making the World Greener (Freeman Dyson, Institute for Advanced Studies)”

<https://www.youtube.com/watch?v=BQHhDxRuTkl>

The real danger is not too much CO₂ - it is CO₂ starvation. Over geologic time, CO₂ is ~permanently sequestered in carbonate rocks. Major food crops (except corn) use the C₃ photosynthetic pathway, and die at about 150 ppm from CO₂ starvation - that is just 30 ppm below the minimum CO₂ concentrations of the last Ice Age, which ended just ~10,000 years ago – “the blink of an eye” in geologic time. Earth came that close to a major extinction event.

During one of the next Ice Ages, unless there is massive human intervention, atmospheric CO₂ will decline to below 150 ppm and that will cause the next major extinction event – not just for a few species but for ~all complex terrestrial carbon-based life forms.

20.

“(Plant) Food for Thought”

By Allan MacRae, January 31, 2009 and Dec 18, 2014

http://icecap.us/index.php/go/new-and-cool/plant_food_for_thought2/

21.

“Should We Celebrate Carbon Dioxide?”

By Dr Patrick Moore, October 15, 2015

<https://www.thegwpf.org/patrick-moore-should-we-celebrate-carbon-dioxide/>

THE NON-SCIENTIFIC “CLIMATE CHANGE” AKA “WILDER WEATHER” HYPOTHESIS IS FALSE.

As stated above, the “Climate Change” aka “Wilder Weather” hypothesis is typically framed as a “non-falsifiable hypothesis” that can mean anything and everything. Nevertheless, when it is scientifically framed, it has been falsified many times.

A credible series of rebuttals of climate alarmists’ false claims is stated here:

22.

“Alarmist Claim Rebuttals”

<https://alarmistclaimresearch.wordpress.com/>

23.

“Wrong Again: 50 Years of Failed Eco-pocalyptic Predictions”

By Myron Ebell and Steven J. Milloy, September 18, 2019

<https://cei.org/blog/wrong-again-50-years-failed-eco-pocalyptic-predictions>

24.

“Climate Prediction Swings and Misses: A Decade of Alarmist Strike Outs, 2010-2019”

https://www.youtube.com/watch?v=a_w8YRRMFOs&feature=youtu.be

Compiled by Steve Milloy

25.

“Claim: CO₂-induced climate change is threatening global food production and harming natural ecosystems – Rebuttal”. By Dr Craig Idso, May 2019.

https://alarmistclaimresearch.files.wordpress.com/2019/05/ac-rebuttal-agriculture-and-naturecosystems_idso020619-1.pdf

The ability to correctly predict significant climate events is probably the best objective measure of scientific competence in the field of climate. It is important to note that every scary prediction made by the Global Warming/Climate Change alarmists has failed to materialize – they have a perfect negative predictive track record and thus perfect negative credibility .

CONCLUSION

The Catastrophic Anthropogenic Global Warming hypothesis is falsified. There no CAGW crisis. The Catastrophic Humanmade “Climate Change” hypothesis is also falsified.

NOTE B – THE MASS BALANCE ARGUMENT; THE CAUSE OF INCREASING ATMOSPHERIC CO2.

The above definition of the CAGW hypothesis states in part: *“Atmospheric CO2 is continuing to increase due to humanity’s accelerating combustion of fossil fuels...”*

Scientists including Salby, Berry and Harde have hypothesized that the increase in atmospheric CO2 from the alleged “pre-industrial” concentration of ~280ppm to more than 400 ppm is largely natural and not mostly humanmade. I have considered this question for ~12 years, and am still agnostic on the conclusion, so I have not included it in my above falsifications of the CAGW hypothesis. Regardless of the cause, the observed increase in atmospheric CO2 is hugely beneficial to humanity and the environment.

“The Keeling Curve”

Scripps Institution of Oceanography

<https://scripps.ucsd.edu/programs/keelingcurve/>

“Address to the Sydney Institute “

By Dr Murry Salby, August 2, 2011

<http://youtu.be/YrI03ts--9I>

“Salby – Hamburg Address”, April 18, 2013 https://www.youtube.com/watch?v=2ROw_cDKwc0

“Salby – Hamburg Address”, October 10, 2018 <https://youtu.be/rohF6K2avtY>

“Human CO2 Has Little Effect on Atmospheric CO2”

By Dr Edwin Berry, 2019

<https://edberry.com/blog/climate-physics/agw-hypothesis/contradictions-to-ipccs-climate-change-theory/>

“What Humans Contribute to Atmospheric CO2: Comparison of Carbon Cycle Models with Observation”

By Dr Hermann Harde, International Journal of Earth Sciences Vol. 8, No. 3, 2019

<http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=161&doi=10.11648/j.earth.20190803.13>