The Problem with Blocking Sunlight to Counteract Global Warming

INTRODUCTION

Chemtrail conspiracy theorists[1] have been sounding the alarm about vapour trails from jet planes for many years. Chemtrails (or 'condensation trails') in the sky from the passage of high altitude jets can be seen in the graphic below:[2]

These chemtrail theorists have been scolded in the media as cranks,[3] however, could what they've been warning us about be part of the international experimental trial in Solar Geoengineering?

THE SCIENCE

What is Solar Geoengineering?

The following free, editable extract from Wikipedia[4] gives us the background information we need to understand what it is, as well as the problems with it as a proposed method of counteracting Anthropogenic (human-caused) Climate Change.[5]

~:~:~:~:~:~:~:~:~

Solar Geoengineering, or Solar Radiation Modification (SRM), is a type of climate engineering where sunlight (solar radiation) would be reflected back to outer space in an attempt to limit Anthropogenic Climate Change. There are many ways to do this, with Stratospheric Aerosol Injection (SAI)[6], being the most-studied method, or by Marine Cloud Brightening (MCB)[7]. Other methods have been proposed, including a variety of approaches in space, but they are generally considered less viable, nor are they taken seriously by the UN's Intergovernmental Panel on Climate Change (IPCC)[8].

All geoengineering methods can rapidly cool atmospheric temperature, but if the intervention were to suddenly stop for any reason, the cooling would also cease. It has been estimated that the cooling impact from SAI would cease 1-3 years after the last aerosol injection, while the impact from marine cloud brightening would disappear in just 10 days.

Even while SRM methods are being used, if carbon dioxide is continuing to be added to the atmosphere, it's presence would continue to very slowly increase global temperatures, according to the theory.

1 – en.wikipedia.org/wiki/Chemtrail_conspiracy_theory
2 – GRAPHIC: From materials that originally came from the U.S. National Oceanic and Atmospheric Administration, taken or made as part of an employee's official duties. [public domain] commons.wikimedia.org/wiki/File:Contrails.jpg
3 – "Chemtrails: What's the truth behind the conspiracy theory?" (23-7-2023) www.bbc.com/news/blogs-trending-62240071
4 – en.wikipedia.org
5 – en.wikipedia.org/wiki/Solar_geoengineering
6 – en.wikipedia.org/wiki/Stratospheric_aerosol_injection
7 – "Reflecting Sunlight: Recommendations for Solar Geoengineering Research and Research Governance" nap.nationalacademies.org/download/25762
8 – "Key Risks across Sectors and Regions" www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter16.pdf

Therefore, solar geoengineering is not a substitute for reducing greenhouse gas emissions. Instead, it's viewed as a temporary measure to limit warming while emissions of greenhouse gases are reduced and some carbon dioxide is removed from the atmosphere.

Solar geoengineering is frequently discussed as an option because it's much faster and cheaper (in the short run) than any form of Climate Change mitigation. While cooling the atmosphere by 1°C through SAI would cost at least $US18 billion[9] annually,[10] and other methods cost tens of billions of dollars or more annually,[11] this would still be "orders of magnitude"[12] cheaper than greenhouse gas mitigation,[13] and the unmitigated effects of Climate Change would cost far more than that.[14]

As of 2022, hundreds of studies have used climate models to simulate the impacts of SRM on the various aspects of the Earth's climate. In general, they show that it can combat many of the adverse effects of Climate Change, such as the increase in extreme weather, the decrease in soil moisture, the slowdown of warm current circulation in the Atlantic Ocean,[15] Arctic sea ice decline, and the melting of mountain glaciers. However, the studies concur that it's impossible for SRM to fully reverse Climate Change and return the world to its pre-industrial state,[16] which has 1850-1900 as its baseline. That's because the scale of any intervention needed to completely balance the recent warming would substantially alter the weather patterns and the water cycle when compared to the past. Also, the acidification of the oceans would proceed until CO_2 concentrations stop increasing. For the same reason, simply using SRM to maintain present-day temperatures would still alter the climate to some extent.[17] Climate models often struggle to correctly estimate regional impacts of global dimming caused by historical sulfate (sulphate) air pollution,[18] and so, there is little confidence in the current projections of how solar geoengineering would affect regional climate and ecosystems.[19]

Governing solar geoengineering is challenging for multiple reasons, including the fact that few countries would likely be capable of doing it alone.[20] For now, there is no formal international framework designed to regulate SRM. Aspects of the UN Convention on Biological Diversity[21] and the Vienna Convention for the Protection of the Ozone Layer[22] do come the closest out of the existing agreements.

There are many questions regarding the acceptable deployment of SRM, or even its research and development, which are currently unanswered. Efforts to create a dedicated international agreement are also hampered by the position taken by some ethics scholars and activists that enabling research into SRM (or even public discussion of it), represents a slippery slope which opens the door to its eventual use.[23]

~:~:~:~:~:~:~:~:~

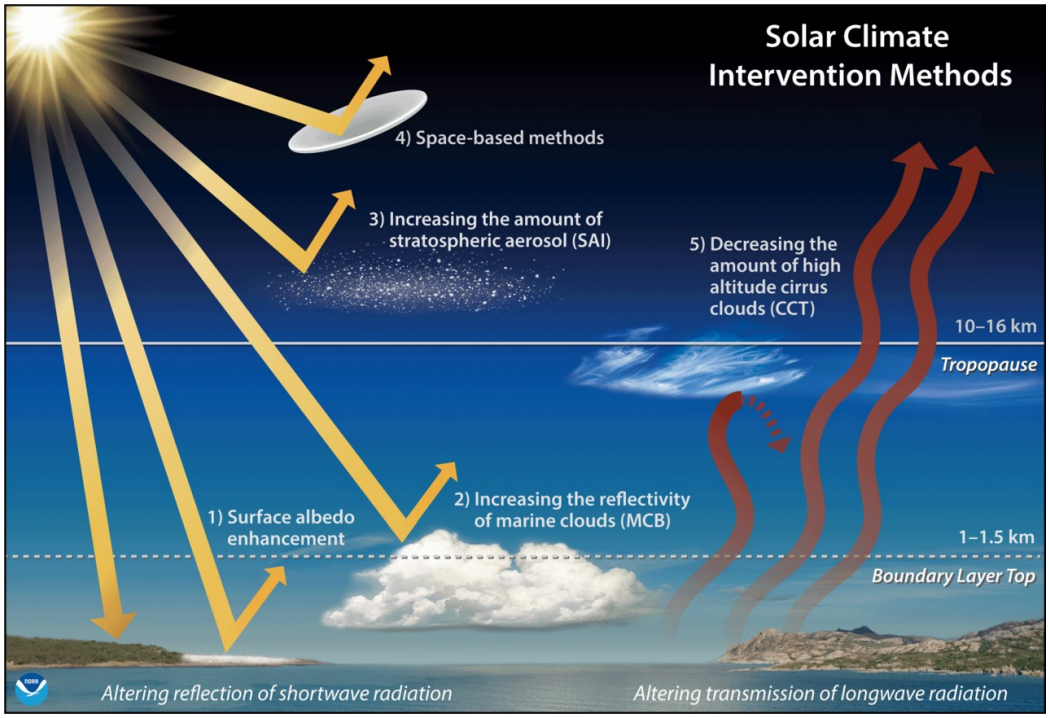
The following are a number of graphics and sets of data to help understand more of the technology behind SRM.

---

9 – At the 2020 USD value
10 – "The cost of stratospheric aerosol injection through 2100" iopscience.iop.org/article/10.1088/1748-9326/aba7e7
11 – A. Robock, A. Marquardt, B. Kravitz, G. Stenchikov (2-10-2009) "Benefits, Risks, and costs of stratospheric geoengineering" Geophysical Research Letters. 36 (19)
12 – DEFINITION: An estimate of size or magnitude expressed as a power of ten. www.wordnik.com/words/order%20of%20magnitude
DETAILS: en.wikipedia.org/wiki/Order_of_magnitude
13 – "Emerging risk governance for stratospheric aerosol injection as a climate management technology" link.springer.com/article/10.1007/s10669-019-09730-6
14 – "Geoengineering the climate Science, governance and uncertainty" (September 2009) royalsociety.org/~/media/Royal_Society_Content/policy/publications/2009/8693.pdf
15 – AKA Meridional Overturning Circulation (MOC)
16 – "What is a pre-industrial climate and why does it matter?" theconversation.com/what-is-a-pre-industrial-climate-and-why-does-it-matter-78601
17 – "Key Risks across Sectors and Regions" www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter16.pdf
18 – "Insights into recent aerosol trends over Asia from observations and CMIP6 simulations" www.sciencedirect.com/science/article/pii/S0048969721058344
19 – "Key Risks across Sectors and Regions" www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter16.pdf
20 – "Geoengineering: the Gamble" gwagner.com/books/geoengineering-the-gamble/
21 – en.wikipedia.org/wiki/Convention_on_Biological_Diversity
22 – en.wikipedia.org/wiki/Vienna_Convention_for_the_Protection_of_the_Ozone_Layer
23 – "Key Risks across Sectors and Regions" www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter16.pdf

How Solar Geoengineering Works

The graphic[24] below is a diagram of how reflected radiation changes the balance of heat that actually warms the lower atmosphere. This layer of the atmosphere is where environmentalists claim humans are causing "catastrophic Climate Change".

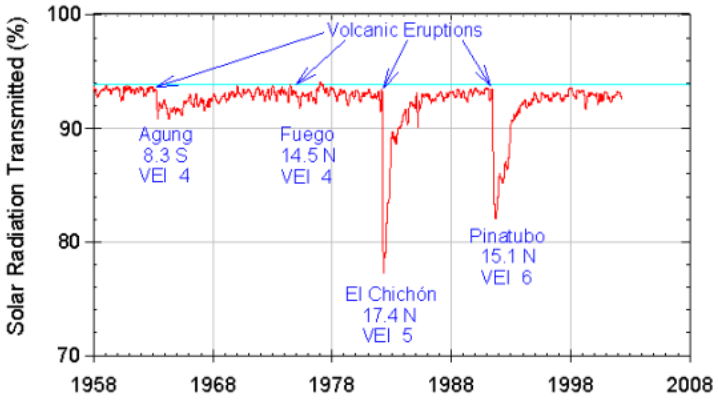


The Basis For Using Aerosols

The basis for using aerosols has come from the impact that fine volcanic dust has in reducing the sunlight reaching the Earth's surface. This was been discovered and documented following volcanic eruptions.

The graphic below shows the decrease in solar radiation (known as Solar Irradiance[25]) detected at the Earth's surface at the Mauna Loa Observatory Hawaii. After volcanic eruptions the amount of solar radiation transmitted to the ground decreased, depending on how much aerosol and dust was released into the atmosphere with each eruption.[26]

Mauna Loa Observatory Atmospheric Transmission



24 – GRAPHIC: By Chelsea Thompson, NOAA/CIRES - https://research.noaa.gov/News/Scientist-Profile/ArtMID/536/ArticleID/2758/Study-of-wildfire-plumes-provide-insights-into-methods-that-might-cool-the-planet, Public Domain, commons.wikimedia.org/wiki/File:Illustration_different_solar_climate_intervention_techniques.png

25 – en.wikipedia.org/wiki/Solar_irradiance

26 – GRAPHIC: This image is in the **public domain** because it contains materials that originally came from the U.S. National Oceanic and Atmospheric Administration commons.wikimedia.org/wiki/File:Mauna_Loa_atmospheric_transmission.png

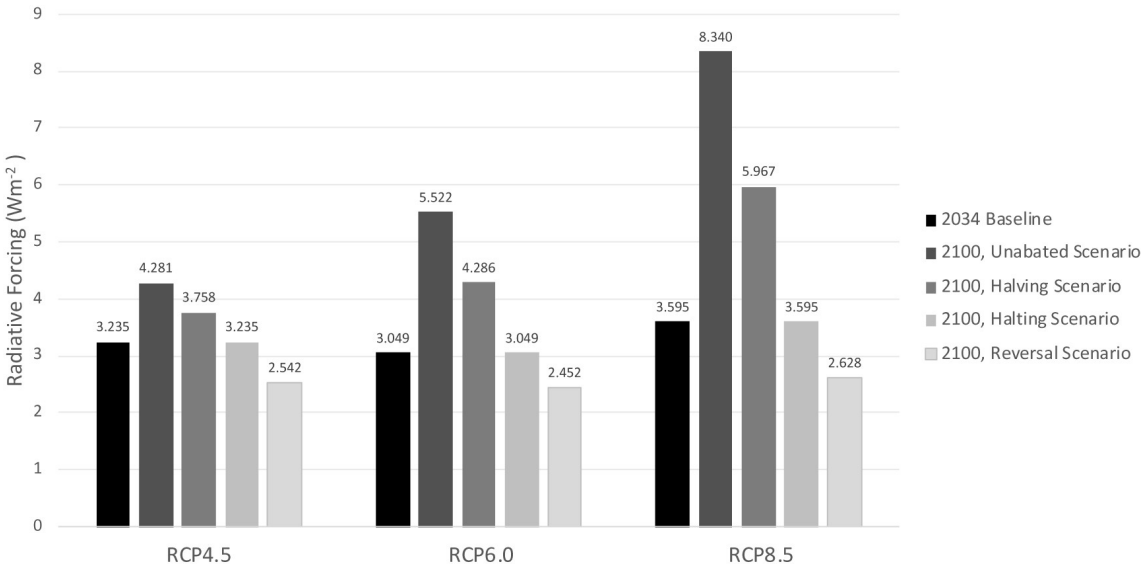
Aerosols Proposed to be Used

There are a number of possible aerosols:[27]

- Sulphuric Acid
- Titanium Oxide (Rutile or Anatase)
- Silicon Carbide
- Synthetic diamond
- Zirconium Oxide
- Aluminium Oxide
- Calcium Carbonate

The Scale of Aerosol Use

Solar geoengineering can be deployed on different scales. The technical graph[28] below shows the baseline radiative forcing[29] under three different scenarios (labelled RCPs). It shows how it would be affected by the deployment of SAI, starting from 2034, to either halve the speed of warming by 2100, to halt the warming, or to reverse it entirely.[30]



ISSUES WITH SRM

There has been opposition to SRM from scientists in various scientific areas of research, as well as their opposition to the various SRM techniques. This division is just another example of disagreement within the ranks of scientists which the media and politicians ignore in their quest to manipulate the public. (See my recent article on that.[31]) Example: The media doesn't cover the downside of SRM because of their quest to manipulate what we know.[32]

> *"I think what they're doing—with things like shadow banning and denylisting—is they're trying to simplify controversies and reduce everybody's intellectual field of view and, in doing so, kind-of drain our will to be curious, to stand up for ourselves, [and] to think about things in a complicated way."*[33]

27 – "The cost of stratospheric aerosol injection through 2100" iopscience.iop.org/article/10.1088/1748-9326/aba7e7
28 – This image comes from [iopscience.iop.org/article/10.1088/1748-9326/aba7e7/pdf a 2020 paper] devoted to analyzing costs of stratospheric aerosol injection (SAI). en.wikipedia.org/wiki/File:Smith_2020_SAI_RCP_scenarios.jpg
29 – en.wikipedia.org/wiki/Radiative_forcing
30 – "The cost of stratospheric aerosol injection through 2100" iopscience.iop.org/article/10.1088/1748-9326/aba7e7
31 – "Did You Know You Can Choose to Subscribe to the 'Best Science'?" (6-8-2023) canberraforerunners.org/wp-content/uploads/Did-You-Know-You-Can-Choose-to-Subscribe-to-the-Best-Science.pdf
32 – "How Hidden Actors Distort Reality, Manipulate the Public, and Enforce Consensus" www.theepochtimes.com/epochtv/exclusive-matt-taibbi-how-hidden-actors-distort-reality-manipulate-the-public-and-enforce-consensus-5411724
33 – Matt Taibbi (22–7-2023) "How Hidden Actors Distort Reality, Manipulate the Public, and Enforce Consensus"

From the disagreement of scientists over the SRM methods, here's one such objection:

> *"While deployed sulfates may create modest airborne public health impacts (Effiong and Neitzel 2016), the negative environmental impacts of stratospheric heating (Heckendorn et al 2009) and ozone destruction (Crutzen 2006, National Research Council 2015) are of substantially greater concern."*[34]

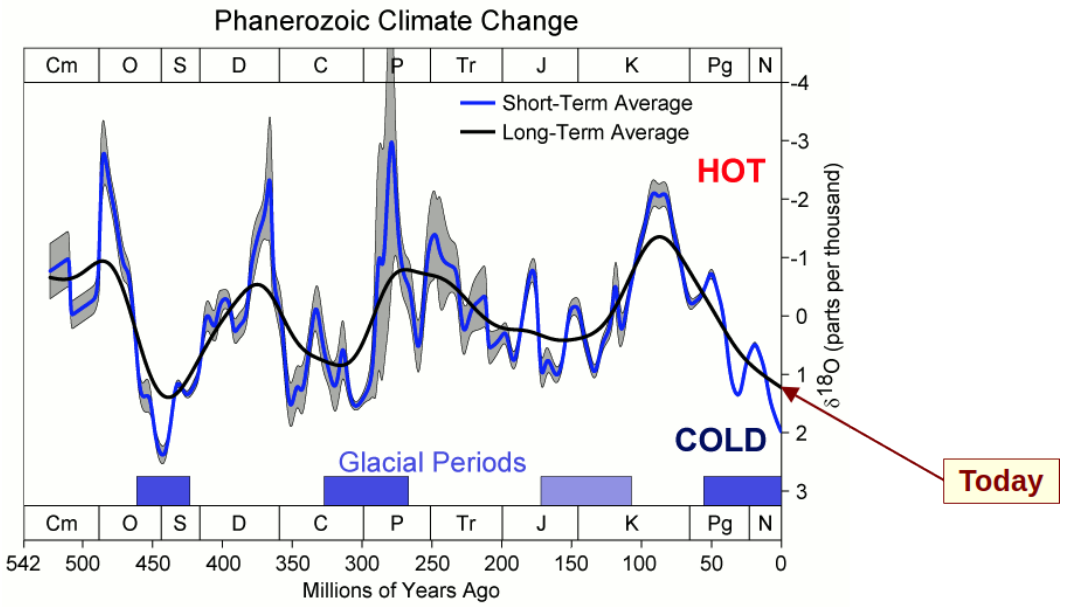
Here's another point of opposition:

> *"In an open letter published in January last year, a group of scientists and scholars called for an international non-use agreement on solar engineering, arguing that such a deal will "inhibit further normalization and development of a risky and poorly understood set of technologies that seek to intentionally manage incoming sunlight at planetary scale.""*[35]

The Hidden Danger

Despite the opposition to SRM by many scientists, the real danger for humanity is not understanding what changing the world's climate will do. Models won't be able to accurately predict the possibility of downsides because they are created from algorithms derived from human origin (human thought),[36] which can't adequately take chaos into account. That's important, because climate and weather are chaotic events, subject to rapid and magnitudinal change at any instant.

My primary concern in this is that 'the powers that be' (read "elite and politicians") are totally unaware that we are currently in a cooling phase of the Earth's very-long-term climate cycle. In fact, we are currently living in the Quaternary ice age, also known as the Quaternary Glaciation or the Pleistocene Glaciation. In the graph below, we at time zero (0) on the right-hand side of the bottom axis, on the downward temperature gradient for the past 100 million years (approx.).



(**READ:** My ice age article, "We are Currently Living in the Quaternary Ice Age"[37])

www.theepochtimes.com/epochtv/exclusive-matt-taibbi-how-hidden-actors-distort-reality-manipulate-the-public-and-enforce-consensus-5411724

34 – "The cost of stratospheric aerosol injection through 2100" iopscience.iop.org/article/10.1088/1748-9326/aba7e7

35 – "Solar geoengineering: The case for an international non-use agreement" wires.onlinelibrary.wiley.com/doi/full/10.1002/wcc.754

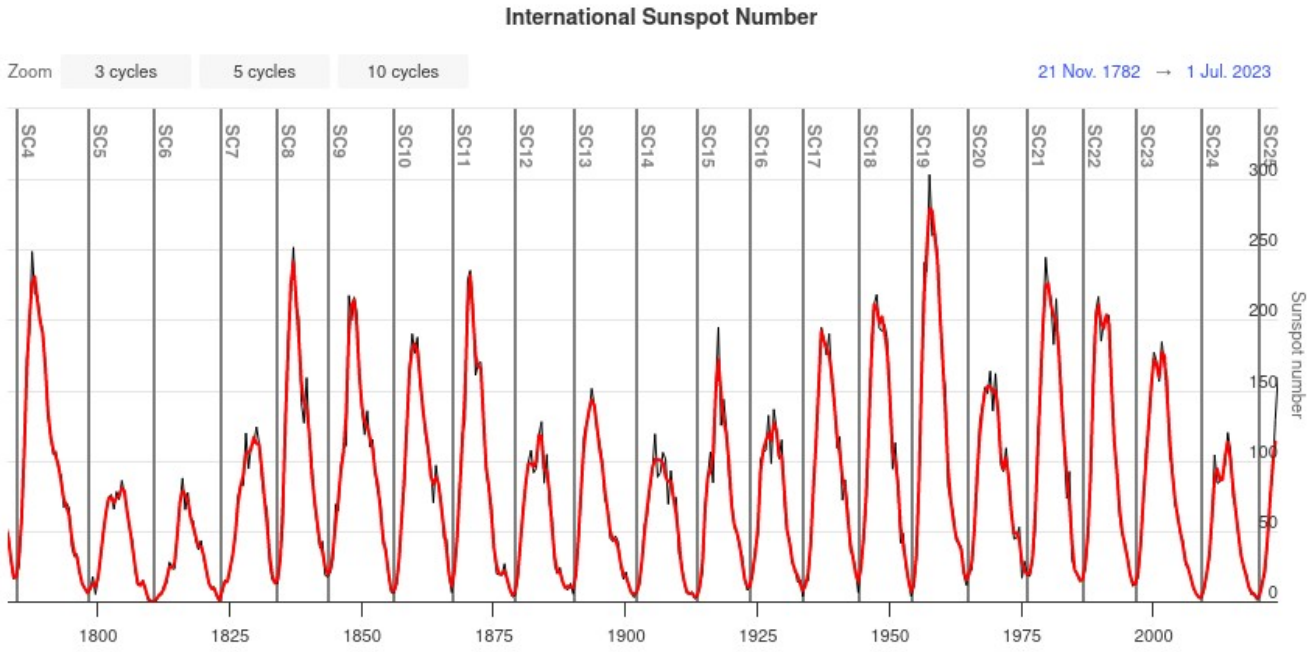
36 – "Climate models behind Net Zero policies are 'thoroughly flawed'"
www.netzerowatch.com/climate-models-behind-net-zero-policies-are-thoroughly-flawed
Willis Eschenbach "Climate Models and Climate Muddles"
www.netzerowatch.com/content/uploads/2023/07/Eschenbach-Climate-Models.pdf

37 – "We are Currently Living in the Quaternary Ice Age" (13-7-2023)
canberraforerunners.org/wp-content/uploads/We-are-Currently-Living-in-the-Quaternary-Ice-Age.pdf

As our climate is slowly cooling worldwide over the long term, if the world's authorities decide to use SRM, the drop in temperature could be catastrophic when it interacts with the cooling trend. A few degrees drop in temperate worldwide could send us into a mini ice age very quickly. We know that from how a few degrees drop in the global temperature caused mini ice ages in the past.

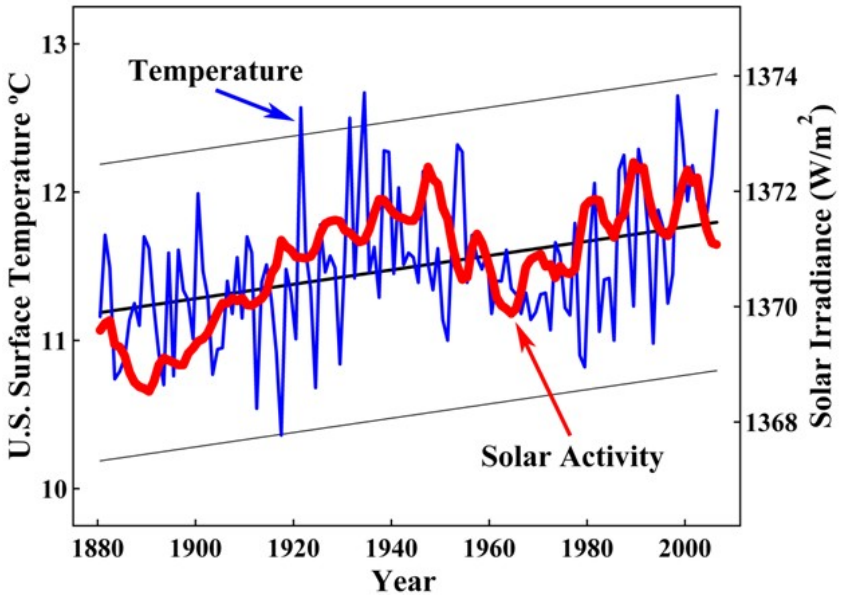
It's not good to play with chaotic climate and expect it to be able to be manipulated the way humans want it to be. The catastrophic consequences from that is something that the Global Warming extremists and politicians are not even contemplating.

The other danger in cooling comes from ignorance of the solar cycles that the Earth is affected by on a continual basis. The graph below shows these cycles since 1782.



(Graphic: spaceweatherlive.com)[38]

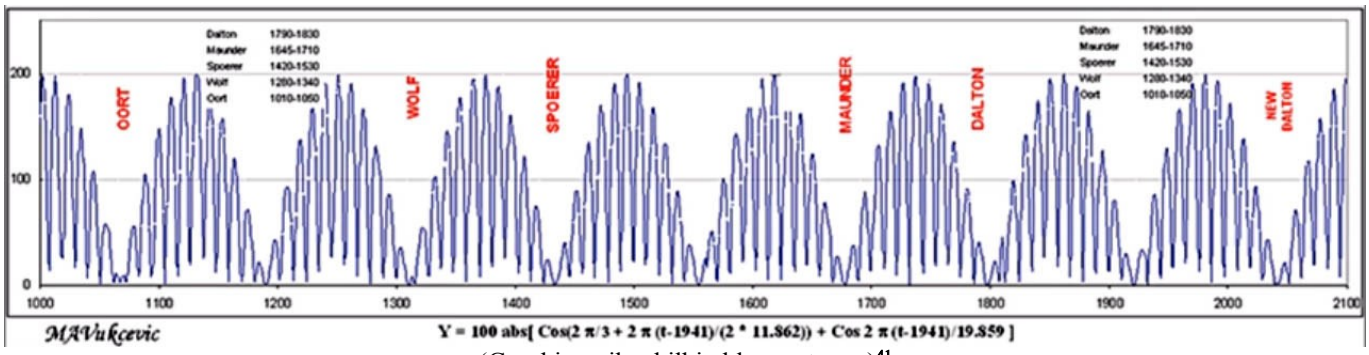
The temperature issue arises because there's significant correlation between solar activity and global temperatures, as this next graph shows:



(Graphic: petitionproject.org)[39]

38 – GRAPHIC: "Historical solar cycles" www.spaceweatherlive.com/en/solar-activity/solar-cycle/historical-solar-cycles.html
39 – GRAPHIC: "Global Warming Petition Project" www.petitionproject.org/gw_article/Review_Article_HTML.php

As we approach Solar Cycle 25, there are concerns that manipulating global temperature in any way at all could lead to significant repercussions.[40] Even more significant is the fact that we're just entering the next Grand Solar Minimum where global temperatures will be on a downward trend for quite some time.



(Graphic: mikephilbin.blogspot.com)[41]

As the graph above shows, Grand Solar Minima (GSM) are associated with periods of lower-than-average global temperatures where there was a temperature variation of about 1°C:

1. Dalton Minimum (1796-1820)[42] – Temperature data for this period were recorded in Germany
2. Maunder Minimum (1645-1715)[43] – Roughly coincided with the middle part of the Little Ice Age[44], during which Europe and North America experienced colder than average temperatures.
3. Spörer Minimum (1460-1550)[45] – Correlation data came from tree rings.
4. Wolf Minimum (1251-1378)[46] – Correlation data came from tree rings.
5. Medieval Minor Minimum (1150-1200)
6. Oort Minimum (1040-1080 AD) – Correlation data came from tree rings.

[**READ:** My article, "GRAND SOLAR MINIMUM - July 2023" [47]]

As a scientific study (among many) has recorded, there will be a global drop in temperature of around 1°C with the up-coming Grand Solar Minimum:

> *"The most recent grand solar minimum occurred during Maunder Minimum (1645–1710), which led to reduction of solar irradiance by 0.22% from the modern one and a decrease of the average terrestrial temperature by 1.0–1.5°C.*
>
> *This discovery of double dynamo action in the Sun brought us a timely warning about the upcoming grand solar minimum 1, when solar magnetic field and its magnetic activity will be reduced by 70%. This period has started in the Sun in 2020 and will last until 2053. During this modern grand minimum, one would expect to see a reduction of the average terrestrial temperature by up to 1.0°C, especially, during the periods of solar minima between the cycles 25–26 and 26–27, e.g. in the decade 2031–2043.*
>
> *The reduction of a terrestrial temperature during the next 30 years can have important implications for*

40 – David Whitehouse (2020) "The Next Solar Cycle and Why it Matters for Climate" www.thegwpf.org/content/uploads/2020/04/SolarCycle25.pdf
41 – GRAPHIC: "Grand Solar Minimum - atmospheric compression - impact on food production, location and energy." mikephilbin.blogspot.com/2017/06/grand-solar-minimum-atmospheric.html
42 – en.wikipedia.org/wiki/Dalton_Minimum
43 – en.wikipedia.org/wiki/Maunder_Minimum
44 – en.wikipedia.org/wiki/Little_Ice_Age
45 – en.wikipedia.org/wiki/Sp%C3%B6rer_Minimum
46 – www.cambridge.org/core/journals/radiocarbon/article/abs/changes-in-solar-activity-during-the-wolf-minimumnew-insights-from-a-highresolution-14c-record-based-on-danish-oak/E940168295C6C63150F0CD6B9322F043#
47 – canberraforerunners.org/wp-content/uploads/GRAND-SOLAR-MINIMUM-July-2023.pdf

different parts of the planet on growing vegetation, agriculture, food supplies, and heating needs in both Northern and Southern hemispheres. This global cooling during the upcoming grand solar minimum 1 (2020–2053) can offset for three decades any signs of global warming and would require inter-government efforts to tackle problems with heat and food supplies for the whole population of the Earth."[48]

Conclusion

If 'the powers that be' embark on SRM with their total focus on reducing global temperatures to counteract the perceived warming effect of carbon dioxide, we can reasonably expect that it's interaction with the imminent Grand Solar Minima will lead to an unanticipated drop in global temperatures. This drop in temperature could well exceed to 1°C drop due to the GSM exacerbating the expected mini ice age of the mid 2000s.

IMPORTANT: It's most likely that the sun is causing Global Warming, not carbon dioxide.[49]

CRITICALLY IMPORTANT: Water vapour is the most potent warmer of the atmosphere, not CO_2.[50] But, authorities aren't doing anything about it's massive impact on atmospheric temperature. Instead, for geopolitical reasons, it's ignored and it's removal from the global warming 'emergency' issue is justified using logic.[51]

(A list of resources on this topic is on the next page)

Laurence
23-7-2023
(www.CanberraForerunners.org)

48 – Valentina Zharkova (4-8-202) "Modern Grand Solar Minimum will lead to terrestrial cooling"
www.ncbi.nlm.nih.gov/pmc/articles/PMC7575229
49 – "Sun Most Likely Causing Global Warming Not Carbon Dioxide"
canberraforerunners.org/wp-content/uploads/Sun-Most-Likely-Causing-Global-Warming-Not-Carbon-Dioxide.pdf
50 – "Water Vapor Confirmed as Major Player in Climate Change"
www.nasa.gov/topics/earth/features/vapor_warming.html
51 – "If water vapour is the key greenhouse gas, why are man-made emissions important?"
www.theguardian.com/environment/2011/jan/28/water-vapour-greenhouse-gas

RESOURCES

● “Reflecting Sunlight - Recommendations for Solar Geoengineering Research and Research Governance”
nap.nationalacademies.org/login.php?record_id=25762

● “Is Climate Engineering Real?”
www.theepochtimes.com/mkt_app/health/is-climate-engineering-real-5409486

● “White House Report Says Blocking Sunlight Can Prevent Global Warming”
www.theepochtimes.com/science/white-house-considering-blocking-sunlight-to-prevent-greenhouse-warming-5369993

● “The cost of stratospheric aerosol injection through 2100”
iopscience.iop.org/article/10.1088/1748-9326/aba7e7/pdf

● “The SPICE Project” [Sun-blocking Feasibility Study in UK]
www.spice.ac.uk

● “A specialised delivery system for stratospheric sulphate aerosols (part 2): financial cost and equivalent CO2 emission”
link.springer.com/content/pdf/10.1007/s10584-020-02686-6.pdf

● “Congressionally Mandated Research Plan And An Initial Research Governance Framework Related To Solar Radiation Modification” (June 2023)
www.whitehouse.gov/wp-content/uploads/2023/06/Congressionally-Mandated-Report-on-Solar-Radiation-Modification.pdf

● “White House report signals openness to manipulating sunlight to prevent climate change”
www.foxnews.com/media/white-house-report-signals-openness-manipulating-sunlight-prevent-climate-change

● “Solar geoengineering: The case for an international non-use agreement”
wires.onlinelibrary.wiley.com/doi/full/10.1002/wcc.754

● “Climate scientists: Ban solar geoengineering”
www.resilience.org/stories/2022-01-21/climate-scientists-ban-solar-geoengineering/

● “Marine Cloud Brightening ”
keith.seas.harvard.edu/marine-cloud-brightening

● “Climate engineering reconsidered” (25-6-2014)
www.nature.com/articles/nclimate2278

● “On Climate Frankensteins and Sun Kings”
www.theepochtimes.com/on-climate-frankensteins-and-sun-kings_5384999.html

● “New Green Scheme: Block Sunlight to Save the Planet From Global Warming”
www.theepochtimes.com/new-green-scheme-block-sunlight-to-save-the-planet-from-global-warming_5371970.html

● “The next Grand Solar Minimum, Cosmic Rays and Earth Changes (an introduction)”
abruptearthchanges.com/2018/01/14/climate-change-grand-solar-minimum-and-cosmic-rays

● “GRAND SOLAR MINIMUM - July 2023”
canberraforerunners.org/wp-content/uploads/GRAND-SOLAR-MINIMUM-July-2023.pdf

● “We are Currently Living in the Quaternary Ice Age”
canberraforerunners.org/wp-content/uploads/We-are-Currently-Living-in-the-Quaternary-Ice-Age.pdf

● “Solar “Grand Minima” Threat Analysis”
www.researchgate.net/publication/238723877_Solar_Grand_Minima_Threat_Analysis

● “Sun Most Likely Causing Global Warming Not Carbon Dioxide”
canberraforerunners.org/wp-content/uploads/Sun-Most-Likely-Causing-Global-Warming-Not-Carbon-Dioxide.pdf

● “Water Vapor Confirmed as Major Player in Climate Change”
www.nasa.gov/topics/earth/features/vapor_warming.html

●

●

●

●

●