Clean Air Preservation Act
PA SB 508 / HB 1167

History

Weather Modification Policy

Federal Laws

State Laws

Global GE Governance

Coming Soon

"Few in the civil sector fully understand that geoengineering is primarily a military science and has nothing to do with either cooling the planet or lowering carbon emissions."

-Matt Andersson Former executive adviser, aerospace & defence, Booz Allen Hamilton, Chicago

Geoengineering

This article is more than 13 years old

Letters

At war over geoengineering

Thu 9 Feb 2012 16.00 EST

Share

Few in the civil sector fully understand that geoengineering is primarily a military science and has nothing to do with either cooling the planet or lowering carbon emissions (Report, 6 February). While seemingly fantastical, weather has been weaponised. At least four countries - the US, Russia, China and Israel - possess the technology and organisation to regularly alter weather and geologic events for various military and black operations, which are tied to secondary objectives, including demographic, energy and agricultural resource management.

Indeed, warfare now includes the technological ability to induce, enhance or direct cyclonic events, earthquakes, draught and flooding, including the use of polymerised aerosol viral agents and radioactive particulates carried through global weather systems. Various themes in public debate, including global warming, have unfortunately been subsumed into much larger military and commercial objectives that have nothing to do with broad public environmental concerns. These include the gradual warming of polar regions to facilitate naval navigation and resource extraction.

Matt Andersson

Former executive adviser, aerospace & defence, Booz Allen Hamilton, Chicago

Source: https://www.theguardian.com/environment/2012/feb/09/at-war-over-geoengineering

Geoengineering: the intentional large-scale alteration or manipulation of the environment.

Weather Modification: any activity performed with the intention of producing artificial changes in the composition, behavior, or dynamics of the atmosphere.

Solar Radiation Modification (SRM): or "sunlight reflection methods (SRM)." An experiment in the Earth's climatic system involving the release of pollutants that reduces the amount of sunlight reaching the Earth's surface. SRM includes the use of interoperable, ground-based, airborne and space-based facilities.

Cloud Seeding: a method of weather experimentation that may be used to change the amount or type of precipitation by dispersing chemicals or chemical compounds such as dry ice (CO_2), Silver iodide (AgI), or Tri-methyl aluminum (TMA) into the atmosphere by means of aircraft or ground generators.

HUMAN INTERVENTION IN THE EARTH'S CIIMATE: THE GOVERNANCE OF GEOENGINEERING IN 2025+

May 2015

Source: https://www.ggfutures.net/uploads/attachments/GGF2025_Geoengineering_Final_Report.pdf

"We shall propose further cooperative efforts between all nations in weather prediction and eventually in weather control. We shall propose, finally, a global system of communications satellites linking the whole world in telegraph and telephone and radio and television."
- JFK 1961

Source: https://www.jfklibrary.org/learn/about-jfk/historic-speeches/address-to-the-united-nations-general-assembly

"We shall propose further cooperative efforts between all nations in weather prediction and eventually in weather control. We shall propose, finally, a global system of communications satellites linking the whole world in telegraph and telephone and radio and television."
- JFK 1961

WORLD METEOROLOGICAL ORGANIZATION

Weather Climate Water

United Nations
World Meteorological Organization (WMO)
Global Weather Modification / Observation

https://community.wmo.int/en/members

https://www.itu.int/hub/membership/our-members/directory/?myitu-members-states=true&request=countries

United Nations
International Telecommunications Union (ITU)
Global Wireless Standards

Source: https://www.csis.org/analysis/international-telecommunication-union-most-important-un-agency-you-have-never-heard

United Nations Agency WMO + ITU Partnership

World Meteorological Organization (WMO)

Global Weather Modification / Observation

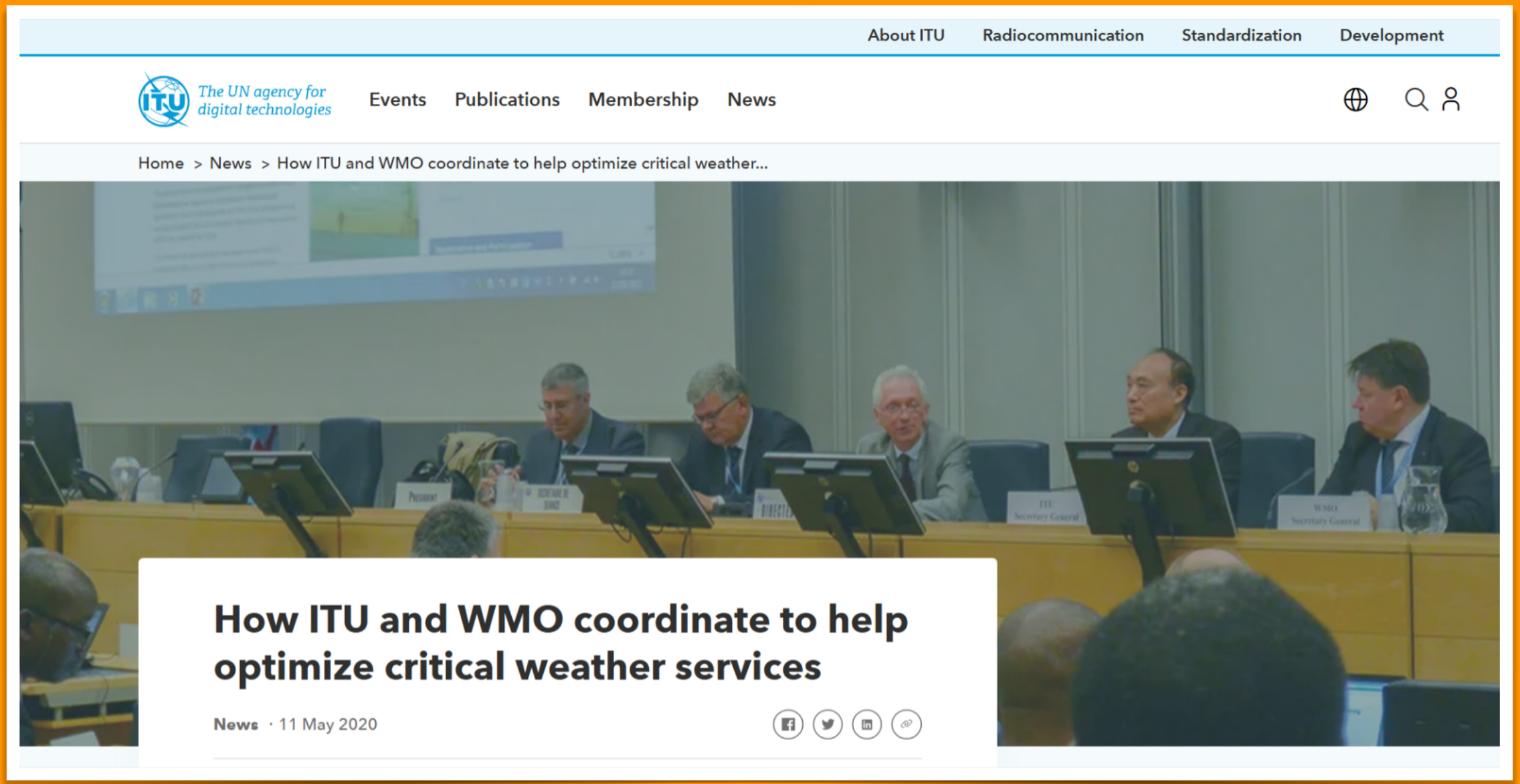
https://community.wmo.int/en/activity-areas/global-telecommunication-system-gts

International Telecommunications Union (ITU)

Global Wireless Standards

"The use of satellite orbits and radio frequency for meteorological organizations is perhaps more important than ever..."

“Radiofrequencies are really critical for meteorological services and climate monitoring applications,”...



Source: https://www.itu.int/hub/2020/05/how-itu-and-wmo-coordinate-to-help-optimize-critical-weather-services/

U.S. Patent: 2014
US15350496/ System for facilitating cloud formation and cloud precipitation

Manipulation of the environment involves the intentional release of hazardous polluting emissions

Hazardous Emissions Categories:

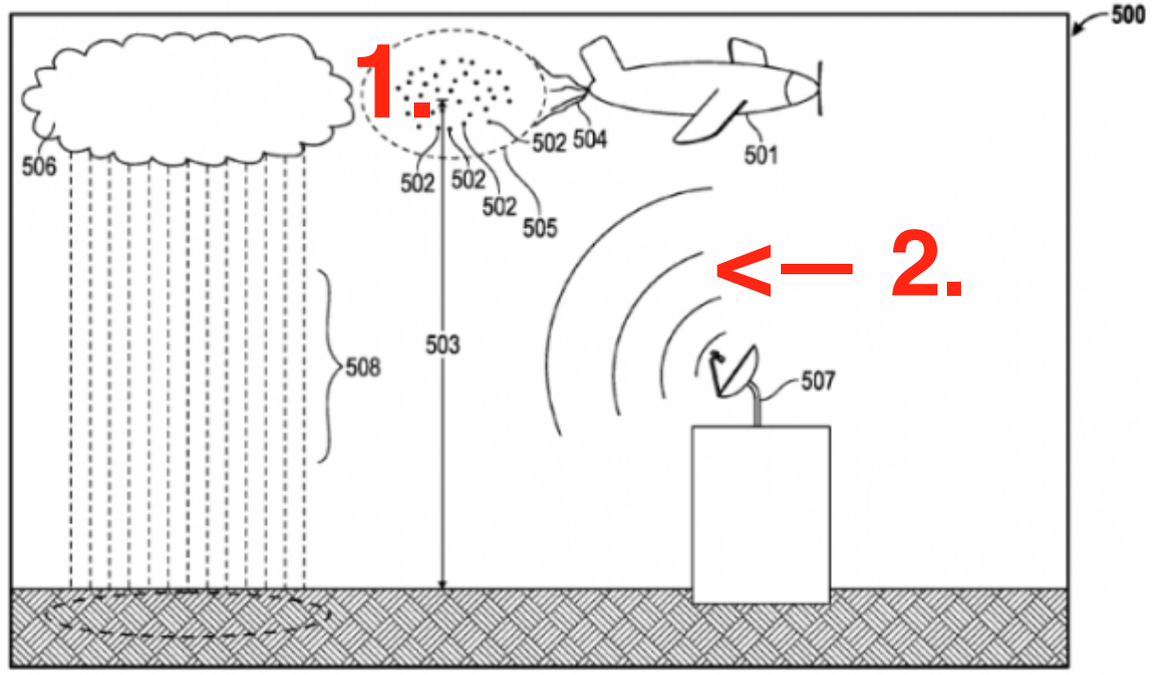


FIG. 5

[Interaction between Categories 1 - “Substances”- and 2 - “Physical Agents" like RF/MW Radiation]

1. Cloud Seeding AEROSOLS
2. RF/ Microwave Radiation

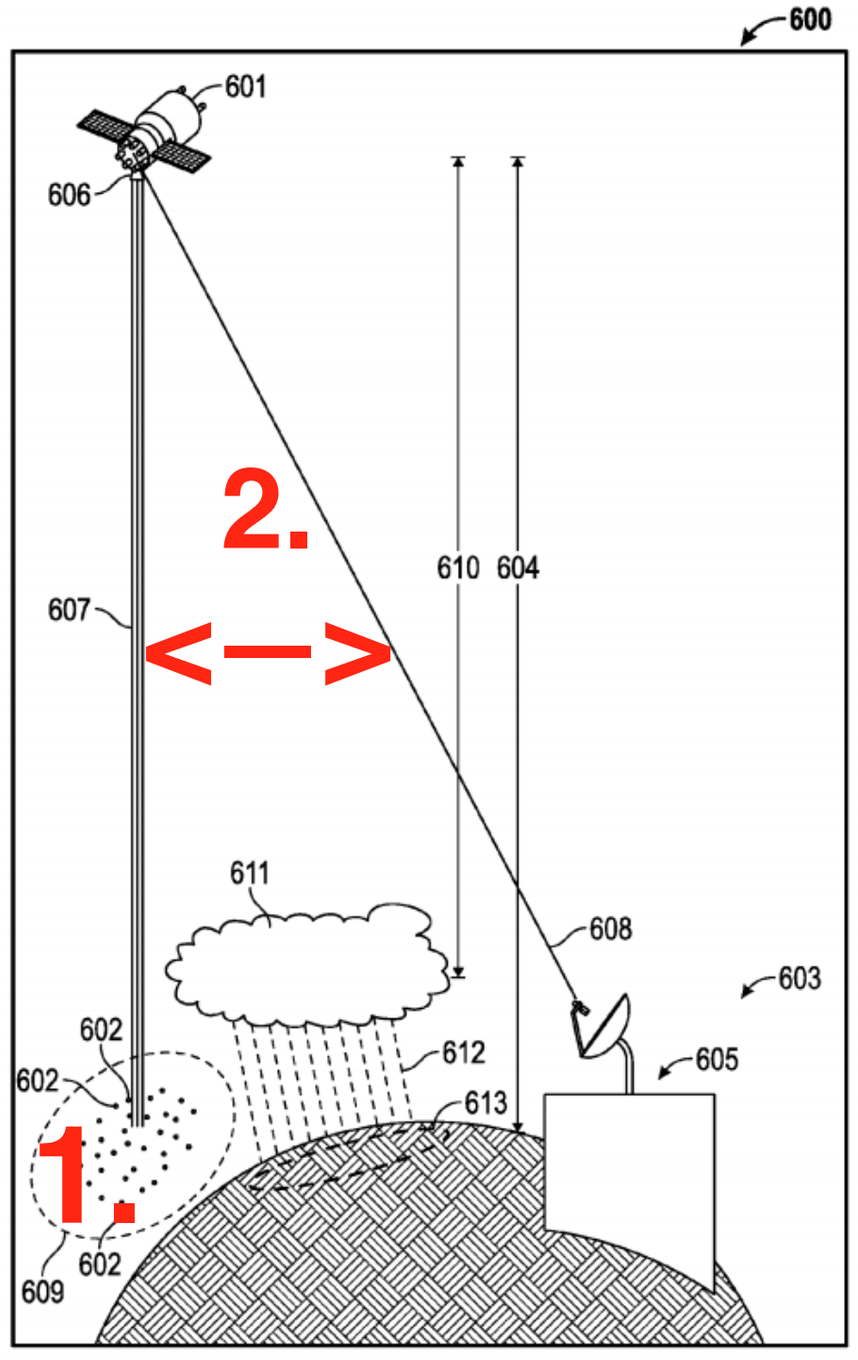


FIG. 6

https://docs.google.com/viewer?url=patentimages.storage.googleapis.com/pdfs/US20140145002.pdf

POLLUTION

UNMANNED AERIAL VEHICLE COMMUNICATION, MONITORING, AND TRAFFIC MANAGEMENT

Satellite

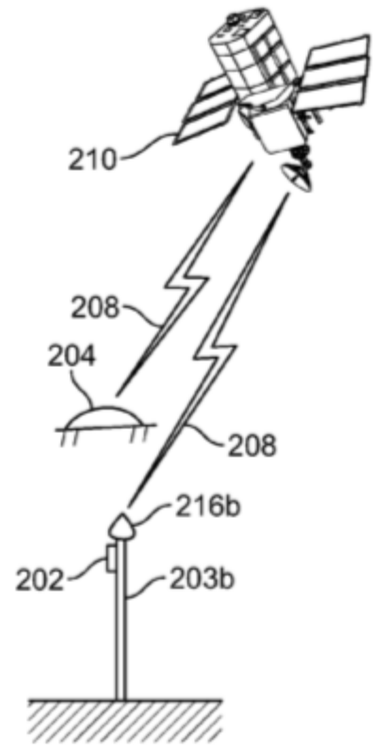


FIG. 3B

Drone

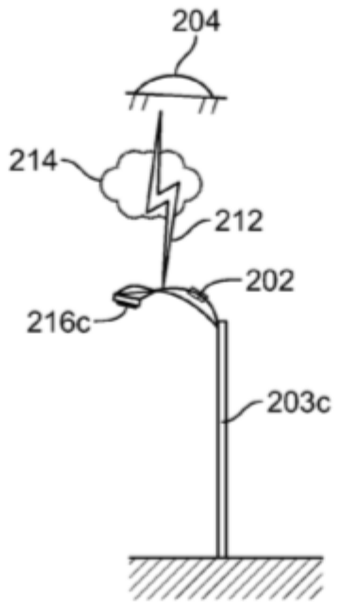


FIG. 3C

Wireless Facility

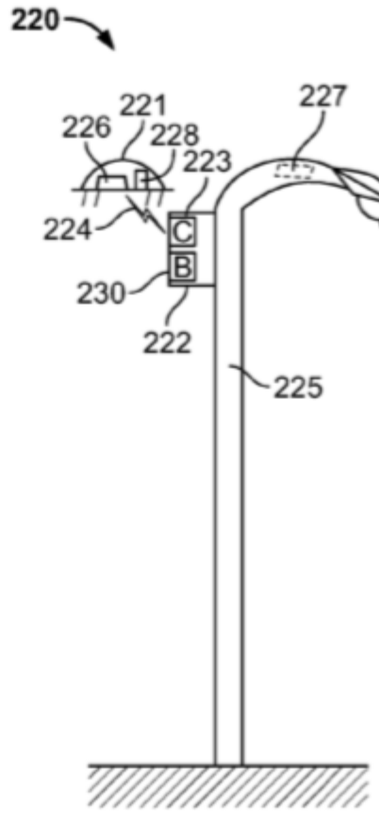
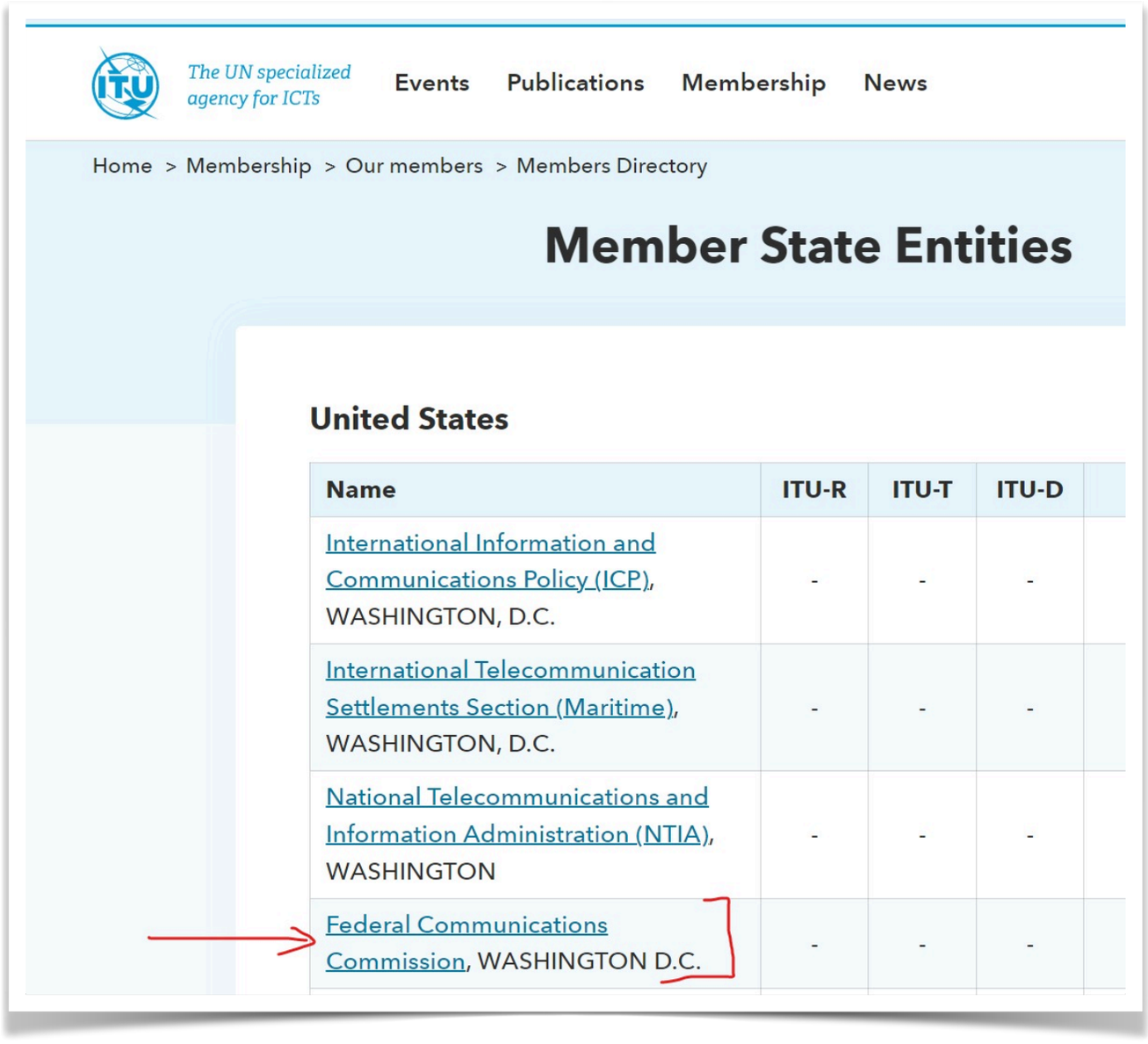


FIG. 4

Unmanned Aerial Vehicle (UAV)

https://patentimages.storage.googleapis.com/6c/7b/90/f2e0d9d4cbd6b1/US9087451.pdf

FCC and NTIA follow guidance of UN ITU/China



https://www.itu.int/hub/2022/08/itu-top-contributors-china/

As a veteran member of the ITU Council, the Chinese Administration actively participates in the making of ITU global standards;

–Digital Economy
–Digital Governance

https://www.itu.int/hub/membership/our-members/directory/?myitu-members-states=true&request=organisations&id=1000100445

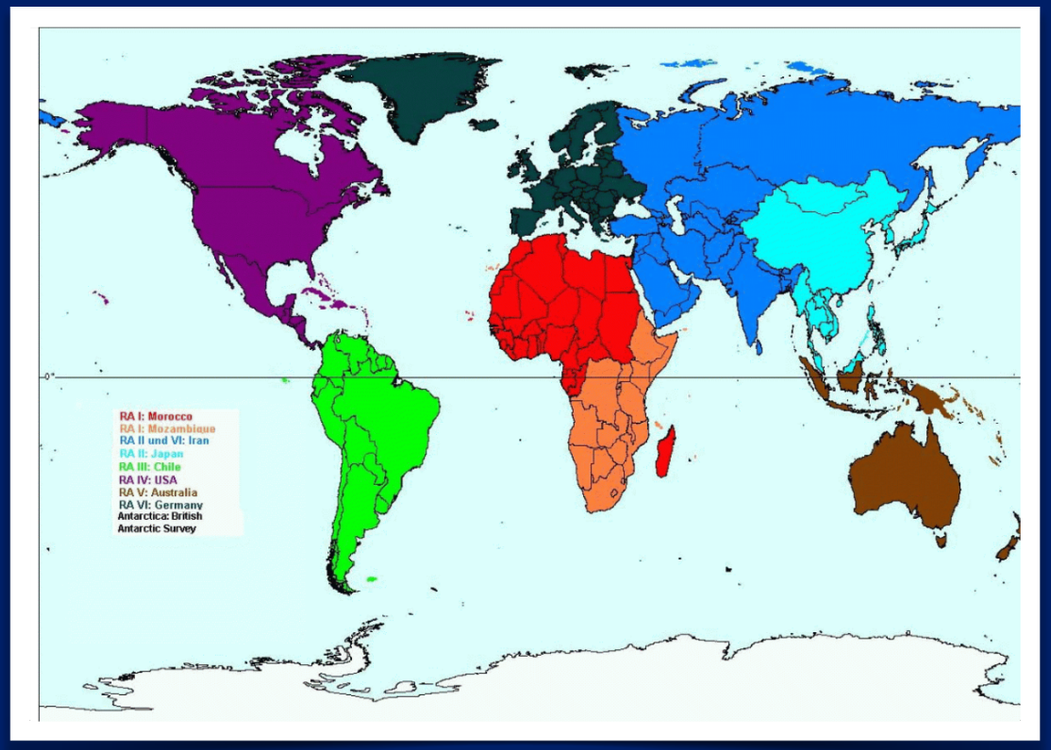
To WMO website | عربي | 中文

GCOS

Global Climate Observing System (GCOS)

The Global Climate Observing System (GCOS) is co-sponsored by WMO, IOC-UNESCO, UNEP, and ISC.

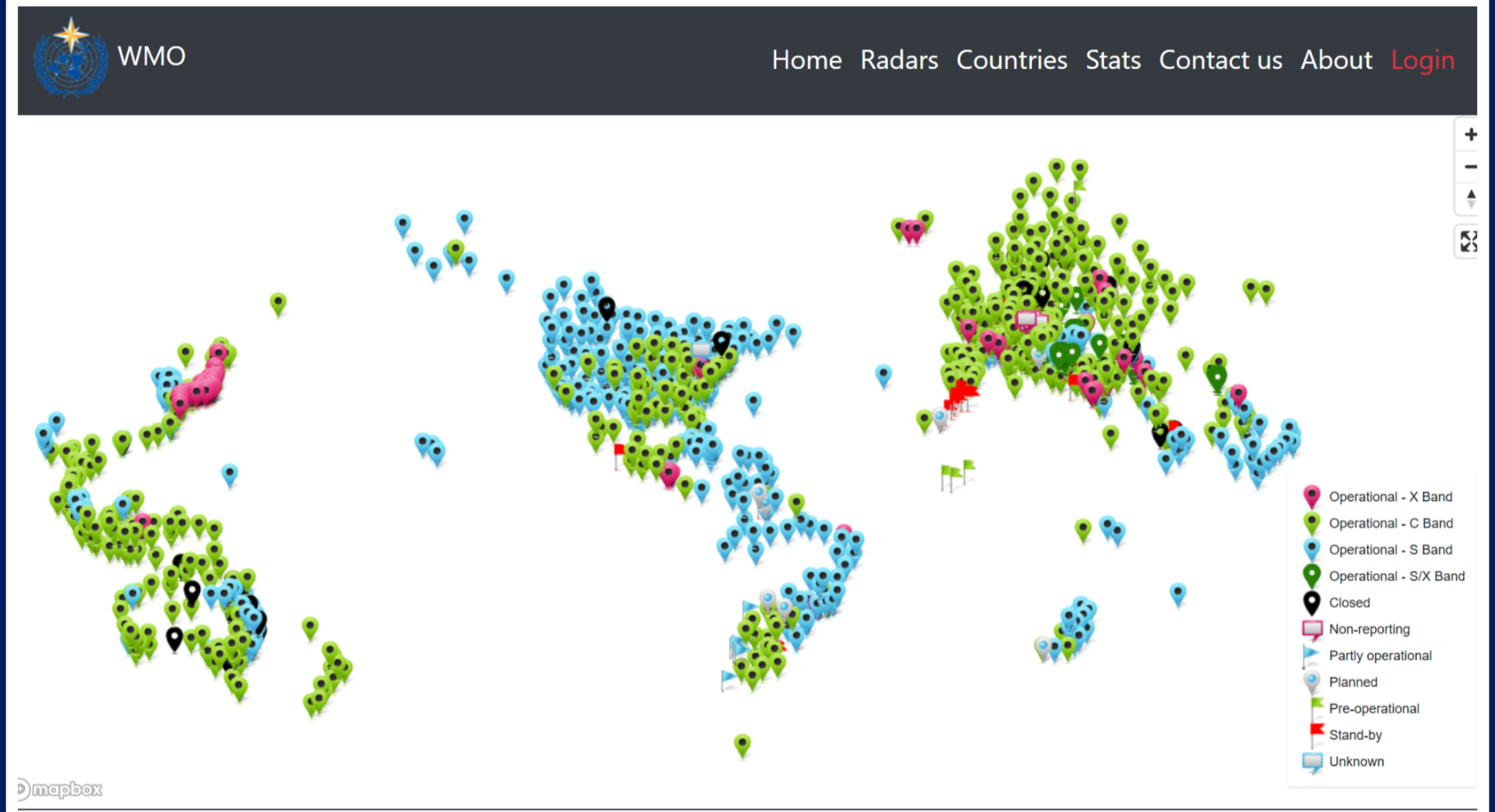
GCOS is supported by the European Union.



The Intergovernmental Oceanographic Commission of United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO)
United Nations Environment Programme (UNEP)
International Science Council (ISC)

Source https://gcos.wmo.int/site/global-climate-observing-system-gcos/cooperation/lead-centres-gcos

WMO Weather Radars



Source: https://wrd.mgm.gov.tr/Home/Wrd

2023 REPORT OF THE REGION IV LEAD CENTRE FOR GCOS

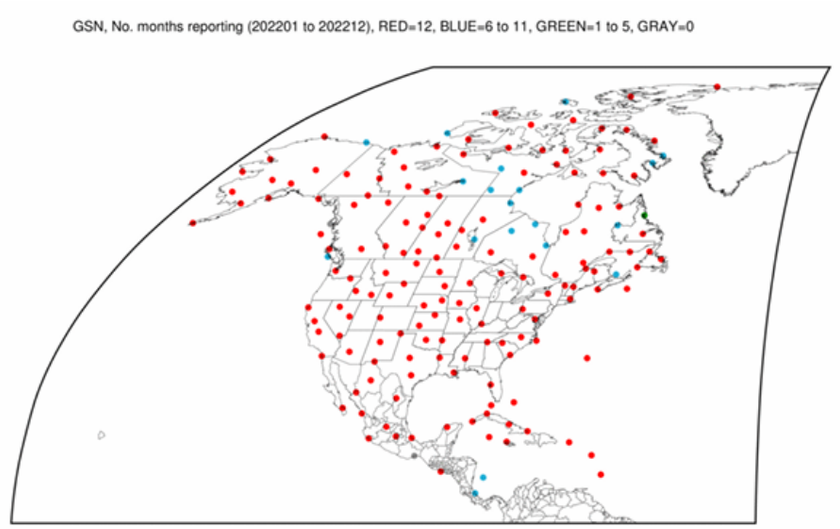


Figure 2. The reporting frequency of the Region IV stations in the GSN network in 2022; stations reporting all 12 months of the year (red), from 6 to 11 reports (blue), 1 to 5 reports (green), and 0 reports (grey).

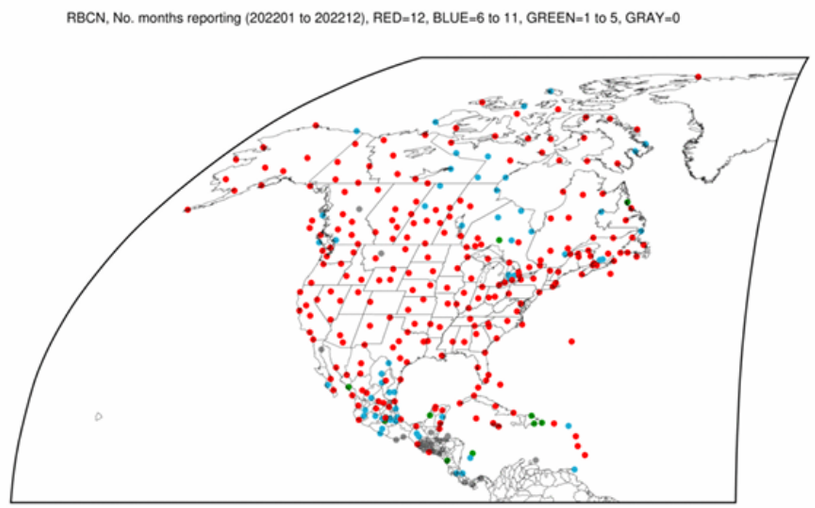


Figure 3. The reporting frequency of the Region IV stations in the RBCN network in 2022; stations reporting all 12 months of the year (red), from 6 to 11 reports (blue), 1 to 5 reports (green), and 0 reports (gray).

Source: https://gcos.wmo.int/sites/default/files/2024-12/cbs_lc_gcos_raiv_us_2022_report.pdf

Global Climate Observing System (GCOS) Affiliates

GCOS NATIONAL COORDINATORS

Country	Contact	Affiliation
Austria	Silke ADLER	Federal Institute for Geology, Geophysics, Climatology and Meteorology
Chile	Gastòn TORRES	Chilean Meteorological Office
China	Peng ZHANG	China Meteorological Administration
Finland	Maria SANTANEN	Finnish Meteorological Institute
Germany	Stefan RÖSNER	German National Meteorological Service
Hungary	Mónika LAKATOS	Hungarian Meteorological Service
Ireland	Sarah GALLAGHER	Irish Meteorological Service
Japan	Saki OHKUBO	Japan Meteorological Agency
The Netherlands	Gé VERVER	Royal Netherlands Meteorological Institute
New Zealand	Jochen SCHMIDT	National Institute of Water and Atmospheric Research
Norway	Lars-Anders BREIVIK	Norwegian Meteorological Institute
Russian Federation	Alexandre ZAYTSEV	Russian Federal Service for Hydrometeorology and Environmental Monitoring
Switzerland	Michelle STALDER	Swiss Federal Office of Meteorology and Climatology

April 25

Source: https://wmo.int/sites/default/files/2025-04/National_GCOS_Coordinators_2025_1.pdf

22 November 1960

CIA Declassified MEMORANDUM FOR: GENERAL CHARLES P. CABELL

2. **The Technological Basis for the Reexamination of the Feasibility of Climate Control**

Technological developments of the past two decades have provided the understanding, the techniques, and the means necessary for an assault on the problems of climate control. Control of any kind requires capabilities in all three of these areas. Meteorology is just now beginning to acquire such capabilities.

Source https://www.cia.gov/readingroom/docs/CIA-RDP78-03425A002100020014-2.pdf

Reflecting on 50 years of geoengineering research

AGU PUBLICATIONS

Earth's Future

COMMENTARY

10.1002/2016EF000454

Special Section:
Crutzen +10: Reflecting upon 10 years of geoengineering research

Reflecting on 50 years of geoengineering research

Ken Caldeira[1] and Govindasamy Bala[2]

[1]Department of Global Ecology, Carnegie Institution, Stanford, California, USA, [2]Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science, Bangalore, India

Abstract *Earth's Future* invited "leading experts in the field of geoengineering research to contribute brief reflections (2–5 pages) on the development of the discussion over the past decade and to consider where it may be going in the next 10 years." Responding to this request, we offer the following text in the spirit of reflections that emphasize our personal roles and viewpoints. The primary focus of many of our comments is solar geoengineering and not carbon dioxide removal (CDR). Thus, this text is not intended to comprise a comprehensive review or set of carefully documented analyses. Our primary conclusion is that sustained progress in "geoengineering" research will depend on social and material support for experimental work that can provide the observational basis for improved modeling and analysis, and, potentially, development and deployment of systems that may help protect the environment and improve human well-being. Relevant issues, and potential future trajectories, for CDR technologies may differ dramatically from those for solar geoengineering technologies.

Key Points:
- Solar geoengineering has been a focus of inquiry for over 50 years
- Sustained progress in "geoengineering" research will depend on sustained social and material support for experimental work
- Future trajectories for carbon dioxide removal technologies may differ dramatically from those for solar geoengineering technologies

Corresponding author:
K. Caldeira, kcaldeira@carnegiescience.edu

Citation:
Caldeira, K., and G. Bala (2017), Reflecting on 50 years of geoengineering research, *Earth's Future*, *5*, 10–17, doi:10.1002/2016EF000454.

Received 31 AUG 2016
Accepted 27 OCT 2016
Accepted article online 2 NOV 2016
Published online 12 JAN 2017

1. The Past

The charge to reflect on developments over the past decade indicates a young person's view of history. Rather than use *Crutzen's* [2006] paper as the opportunity for decadal-scale reflection, we could just as well be using the 1965 President's Science Advisory Committee (PSAC) report to then-President Lyndon Johnson [*President's Science Advisory Committee*, 1965] as a jumping off point to reflect on the evolution of the field on the half-century time scale. The PSAC report raised the possibility of albedo geoengineering to offset CO_2-induced climate change, but did not even consider emissions reduction. Arguably, the history of geoengineering goes deeper than the history of emissions reductions. Geoengineering options discussed in that report included putting reflecting particles over the oceans and modifying cirrus clouds. Geoengineering goals considered included preventing global warming and inhibiting the formation of hurricanes.

Mikhail Budyko's proposal to place aerosols in the stratosphere was first described in his 1977 book "Climatic Changes" [*Budyko*, 1977]. The book originally appeared in the Russian language in 1974. Budyko estimated that about 200,000 tons of sulfur would need to be placed in the stratosphere to offset the warming that occurred between 1920 and 1940. He opined, "Thus in the near future climate modification will become necessary in order to maintain current climatic conditions." He continued, "These measures of climate modification are intended for preventing or weakening climatic changes that may ensue in several decades as a result of man's economic activity. Such modification, however, is not beyond the capacity of modern technology. In the near future it will apparently be possible to modify the climate, … producing a drop in global temperature of several degrees." Budyko suggested that the sulfur content of fuels in stratospheric flights could be tuned to maintain a stable climate. Budyko saw active climate management as a moral imperative, writing, "If we agree that it is theoretically possible … it becomes incumbent on us to develop a plan for climate modification that will maintain existing climatic conditions … "

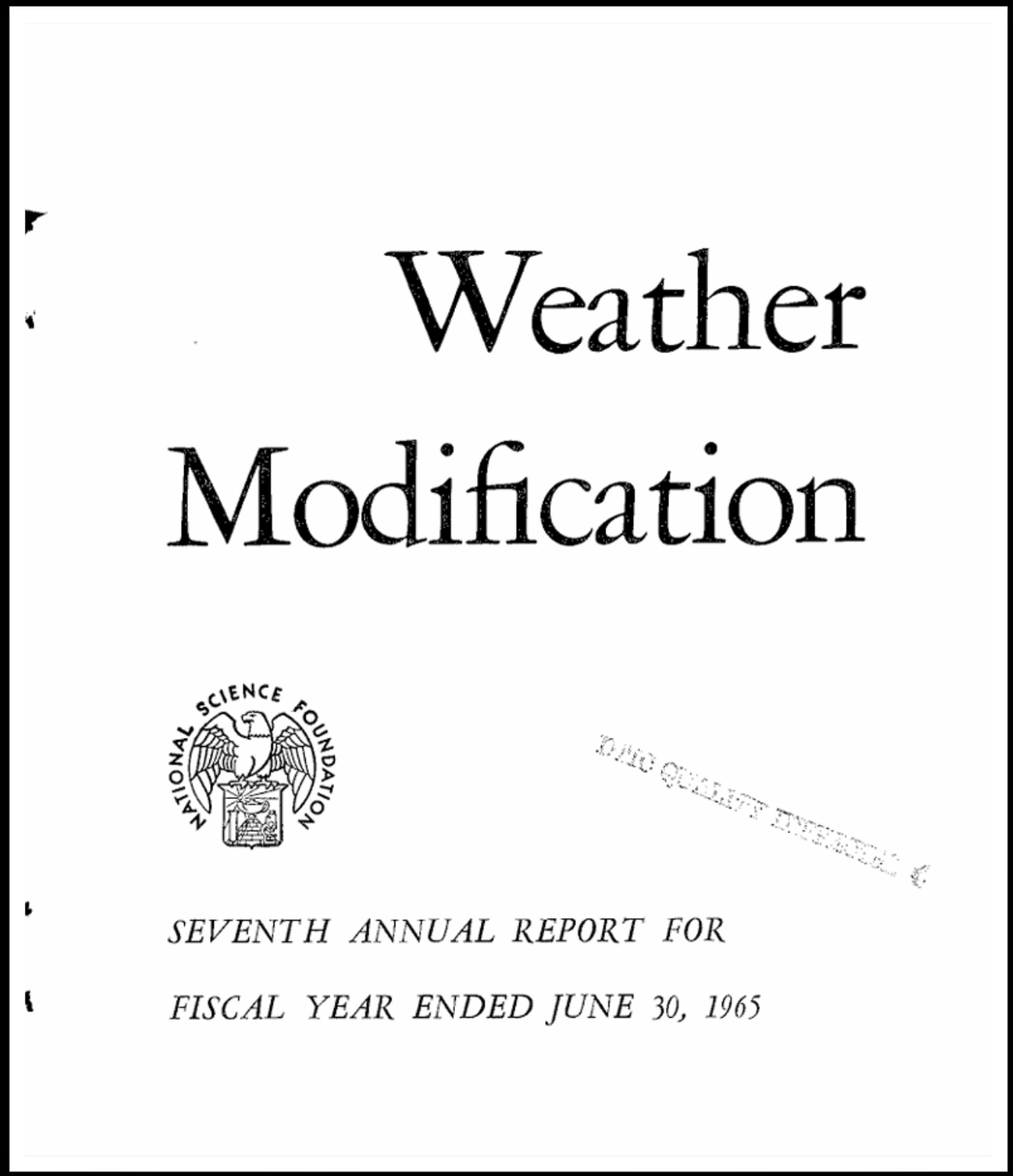
In 1989, James Early published an analysis suggesting that sunlight could be deflected away from the Earth with satellites placed between Earth and the sun [*Early*, 1989]. In 1992, solar geoengineering was highlighted in a 1992 report by the US National Research Council [[*National Research Council*, 1992]. This study reviewed a set of options that largely holds up today, considering concepts such as space mirrors and micro-balloons. This NRC report concluded, "These ideas might merit some further study … but do not now seem worth great effort. They should be kept in mind, however, because technological changes may make them more attractive."

Geoengineering
Weather Modification 1965
Johnson Administration

Source: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2016EF000454 **Jan 2017**

Seventh Annual Report on Weather Modification (for fiscal year 1965) for submission to the Congress as required by section 3(a), paragraph 9, the National Science Foundation Act of 1950, as amended by Public Law 85-510, July 11, 1958.

"The term weather modification, of course, covers a broad range of possible activities..."



Weather Modification

NATIONAL SCIENCE FOUNDATION

SEVENTH ANNUAL REPORT FOR

FISCAL YEAR ENDED JUNE 30, 1965

Source: https://apps.dtic.mil/sti/pdfs/ADA319117.pdf

1971 US/USSR Space Agreement

This US/USSR partnership helped provide the foundation for current global weather experimentation "within the framework of international cooperation of the WMO," aka United Nations World Meteorological Organization.

NEWS

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (202) 755-8370
WASHINGTON, D.C. 20546 TELS: (202) 755-8347

FOR RELEASE: UPON RECEIPT

Richard Friedman
(Phone: 202/755-3897)

RELEASE NO: 71-210

US/USSR SPACE AGREEMENT

The National Aeronautics and Space Administration and the Soviet Academy of Sciences have agreed to rapid exchange of findings of special interest by the U.S. and Soviet probes now approaching Mars.

This exchange is one of a wide range of recommendations by Joint Working Groups under a space agreement negotiated last January by teams led by Dr. George M. Low, Deputy Administrator of NASA, and Academician Mstislav V. Keldysh, President of the Soviet Academy of Sciences. All the recommendations have been approved.

Other approved recommendations by a Working Group on Near-Earth Space, the Moon, and the Planets include the continued exchange of lunar samples; working seminars to consider scientific objectives, strategy, and results, and cross-calibration of instruments; and expert consideration of the principles of constructing a common lunar coordinate system.

- more -

October 20, 1971

Source: https://zerogeoengineering.com/wp-content/uploads/2025/04/1971-US-Soviet-Space-Agreement.pdf

094197

REPORT TO THE CONGRESS

Need For A National Weather Modification Research Program

B-133202

Multiagency

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

710713
094197

AUG. 23, 1974

CHAPTER 1

INTRODUCTION

Weather modification research is part of the atmospheric sciences which is devoted to understanding the composition and processes of the earth and other planets' atmospheres. The Federal Government supports atmospheric research in three program areas:

--The meterology area covers the lower atmosphere that extends from the surface of the earth to 100 kilometers, about 62 miles.

--The acronomy area, which overlaps to some extent with meteorology, extends from outer space to approximately 50 kilometers, about 31 miles above the earth's surface.

--The planetary area is concerned with studies of other planets' atmospheres.

Weather modification research is primarily part of the meteorology area and includes:

--Precipitation modification	--to study and develop techniques to manage and control rain or snow.
--Fog and cloud modification	--to study and develop methods to dissipate cold and warm fogs.
--Hail suppression	--to develop techniques to eliminate hail or reduce the size of hailstones.
--Lightning modification	--to determine the basic characteristics of fire-setting lightning storms and develop techniques to suppress or modify lightning discharges.
--Hurricane and severe storm modification	--to determine the extent which hurricanes can be beneficially modified.
--Inadvertent modification	--to monitor atmospheric constituents and study their modifying influences on the weather.

Science lacks the knowledge to answer many of the questions on weather modification. For example, a thorough understanding of how clouds create rain and snow has not been obtained. In addition, it is not known with a satisfactory degree of confidence to what extent man is changing the climate of the earth. There is wide, though not universal, belief that weather modification has great potential for public good. If weather modification research, which is primarily federally supported,

Source: https://www.gao.gov/assets/b-133202.pdf

Need For A National Weather Modification Research Program 1974

proves successful, it may be possible in future years to alleviate drought, reduce the destructive forces of hurricanes, suppress lightning and damaging hail, and dissipate fog.

During fiscal year 1974, seven of the nine Federal departments and agencies conducting atmospheric sciences research were involved in weather modification research: the Departments of Agriculture, Commerce, Defense, Interior, and Transportation; the National Aeronautics and Space Administration; and the National Science Foundation (NSF).

Estimated costs for atmospheric sciences research as reported by the Interdepartmental Committee for Atmospheric Sciences (ICAS) increased from $36 million in 1959 to about $274.5 million in fiscal year 1974. During this period estimated costs classified as weather modification research increased from $3 million to about $17.4 million. NSF and the Office of Management and Budget (OMB) said much of the general research in atmospheric sciences is also applicable to weather modification.

SCOPE

Our review was directed primarily at obtaining information on Federal weather modification research and identifying opportunities for improvements in administration and management of research programs. It included an examination of records and scientific reports; interviews with officials of the various coordinating committees and Federal agencies, including OMB and the former Office of Science and Technology; and interviews with recognized authorities outside the Federal Government.

We did our work at agency offices and field locations listed below:

--Forest Service, Department of Agriculture.

--National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.

--Defense Advanced Research Projects Agency, Department of Defense.

--Bureau of Reclamation, Department of the Interior.

--NSF.

--Federal Aviation Administration, Department of Transportation.

evaluating programs for the assessment of objectives, performance, and efficiency. An OMB representative sits as an official observer on ICAS and the Federal Committee for Meteorological Services and Supporting Research.

FEDERAL LEGISLATION ON WEATHER MODIFICATION ACTIVITIES

The spread of private weather modification activity in the United States in the late 1940s and early 1950s raised concern in the Congress about the usefulness and effectiveness of this new technology. The Congress, through Public Law 83-256, approved August 13, 1953, established an Advisory Committee on Weather Control. The Committee was required to study and evaluate public and private experiments in weather control and determine the extent to which the United States should experiment with, engage in, or regulate activities designed to control weather conditions. Its report, issued in 1957, was modestly favorable on the potentials of weather modification and recommended further research.

In following up on the report recommendations, the Congress enacted Public Law 85-510, approved July 11, 1958, which authorized and directed NSF to initiate and support a program of study, research, and evaluation in the field of weather modification, and to report annually to the President and the Congress. In addition to establishing weather modification as one of its research programs, NSF also required all commercial and private weather modifiers to maintain records and submit reports on their activities.

In 1968 NSF's authority under Public Law 85-510 was repealed, apparently on the assumption that it would be reassigned to some other agency during the same congressional session. However, no other authorizing law was passed until Public Law 92-205 was enacted on December 18, 1971. This law required that all nonfederally sponsored weather modification be reported to the Secretary of Commerce.

Since 1966 the Congress has considered several bills concerning the assignment of individual agency authority and responsibility for weather modification and one to prohibit weather modification anywhere in the Nation. None of these bills were passed.

INDEPENDENT STUDIES EVALUATING FEDERAL WEATHER MODIFICATION RESEARCH

For nearly a decade a number of scientific panels, committees, and other groups have reviewed, evaluated, and reported on the status of and problems associated with Government atmospheric sciences programs. In nearly every case the reports, including the most recent issued June 29, 1973, by NACOA have not only cited a need for a national program with centralized, single agency responsibility, authority, and control, but also highlighted problems in coordinating multiagency activities and the lack of progress because of fragmented and subcritical research programs. Several of these reports are discussed below.

Source: https://www.gao.gov/assets/b-133202.pdf

"...method of moderating planetary warming trends by temporarily increasing the concentration of sulfate aerosol particles in the lower stratosphere and thereby reducing incoming solar radiation." -September 1975

SOVIET DEVELOPMENTS IN WEATHER MODIFICATION, CLIMATE MODIFICATION AND CLIMATOLOGY

Sponsored By
Defense Advanced
Research Projects Agency

DARPA Order No. 3097

September 1975

DARPA Order No. 3097
Program Code No. P6L10, P6D10, P6E20, P6G10
Name of Contractor:
Informatics Inc.
Effective Date of Contract:
September 1, 1975
Contract Expiration Date:
November 30, 1975
Amount of Contract: $100,617

Contract No. MDA-903-76C-0099
Principal Investigator:
Stuart G. Hibben
Tel: (301) 770-3000
Program Manager:
Ruth Ness
Tel: (301) 770-3000
Short Title of Work:
"Soviet Climatology"

This research was supported by the Defense Advanced Research Projects Agency and was monitored by the Defense Supply Service - Washington, under Contract No. MDA-903-76C-0099. The publication of this report does not constitute approval by any government organization or Informatics Inc. of the inferences, findings, and conclusions contained herein. It is published solely for the exchange and stimulation of ideas.

Informatics Inc
Information Systems Company
6000 Executive Boulevard
Rockville, Maryland 20852
(301) 770-3000

INTRODUCTION

This report focuses on Soviet developments in weather modification, climate modification, and climatology during the period from late 1973 through mid-1975. Current Soviet work in solar meteorology and laser applications in atmospheric sounding are also surveyed. The source literature includes regular Soviet scientific journals, recent monographs, popular science periodicals, and the daily press.

The vulnerability of the Soviet Union to drought, and the State's commitment to reduce this liability, are a central theme of this report. Citing the Arctic warming trend of the 1920's and 1930's which led to the intensification of drought tendencies in the south and central continental areas of the Soviet Union, Soviet climatologists now view a global warming trend as undesirable, potentially more detrimental than beneficial to agriculture.

In the first section, Planetary Climate Modification, M. I. Budyko and co-authors outline a possible method of moderating planetary warming trends by temporarily increasing the concentration of sulfate aerosol particles in the lower stratosphere and thereby reducing incoming solar radiation. Section II, Climatic Variation: a Projected Climatic Warming, illustrates Soviet concern that a man-generated global warming trend is imminent, induced in particular by the increasing atmospheric carbon dioxide build-up.

Section III, Environmental Modification in the USSR, reviews projected large-scale, long-term water diversion plans to reduce the vulnerability of the USSR to drought in the agricultural belt and to open up new territory in the southern R.S.F.S.R., Central Asia, and Siberia to stable agricultural exploitation. A sub-section, Thermal Reclamation of the Northern Latitudes: Pro and Con, is concerned with more speculative material, but in conclusion, reflects the considerable present reservations of Soviet scientists as to the advisability of melting the Arctic ice cap.

Source: https://zerogeoengineering.com/wp-content/uploads/2018/10/a017675-2.pdf

Federal Policy

15 USC Ch. 9A
Weather Modification Reporting Act of 1972, Pub. L. No. 92-205, 85 Stat. 735 (1971) (codified, as amended, at 15 U.S.C. §§330-330e)
https://www.govinfo.gov/content/pkg/USCODE-2015-title15/pdf/USCODE-2015-title15-chap9A.pdf

The National Weather Modification Policy Act of 1976, Pub. L. No. 94-490, 90 Stat. 2359; see also 15 C.F.R. §§ 908.1-908.21
https://www.govinfo.gov/content/pkg/STATUTE-90/pdf/STATUTE-90-Pg2359.pdf

50 U.S.C. § 1520a Pub. L. 105-85, div. A, title X, §1078, Nov. 18, 1997, 111 Stat. 1915; Pub. L. 106-65, div. A, title X, §1067(4), Oct. 5, 1999, 113 Stat. 774.
Restrictions on use of human subjects for testing of chemical or biological agents includes requirement for informed consent.
https://www.govinfo.gov/content/pkg/USCODE-2023-title50/pdf/USCODE-2023-title50-chap32-sec1520a.pdf

50 U.S.C. § 1512 – Pub. L. 91–121, title IV, §409(b), Nov. 19, 1969, 83 Stat. 209; Pub. L. 91–441, title V, §506(b)(1), Oct. 7, 1970, 84 Stat. 912; Pub. L. 96–88, title V, §509(b), Oct. 17, 1979, 93 Stat. 695.
Open air testing of biologicals and chemicals - allows open air testing of chemicals and biologicals and presidential override of notices and of public health considerations for national security reasons.
https://www.govinfo.gov/content/pkg/USCODE-2021-title50/pdf/USCODE-2021-title50-chap32-sec1512.pdf

15 U.S.C. 2921 **"Global Change Research Act of 1990"** Pub. L. 101–606, § 1, Nov. 16, 1990, 104 Stat. 3096
https://www.congress.gov/101/statute/STATUTE-104/STATUTE-104-Pg3096.pdf

15 U.S.C. 8501 H.R. 353 **The "Weather Research and Forecasting Innovation Act of 2017".**
https://www.congress.gov/115/bills/hr353/BILLS-115hr353enr.pdf
https://www.govinfo.gov/content/pkg/COMPS-14257/pdf/COMPS-14257.pdf

2023 Federal experimentation into SRM would be coordinated by the U.S. Global Change Research Program (USGCRP).

The U.S. Global Change Research Program (USGCRP) was established in 1989 by a Presidential Initiative and mandated by Congress in the Global Change Research Act (GCRA) of 1990.

U.S. Global Change Research Program

Sources: https://www.govinfo.gov/content/pkg/STATUTE-104/pdf/STATUTE-104-Pg3096.pdf
https://www.globalchange.gov/about-us
https://www.wcrp-climate.org/JSC45/documents/WCRP-JSC45-USGCRP-presentation.pdf
https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/06/Congressionally-Mandated-Report-on-Solar-Radiation-Modification.pdf

Current Weather Modification Policy
29 USA States + Washington D.C.

IV. APPENDIX A[261]

States	Reporting	License & Permit	Public Participiation	Liability
Alaska*[262]				
Arizona[263]	X	X		
Arkansas*[264]				
California[265]	X			
Colorado[266]	X	X	X	X
Florida[267]	X	X	X	
Idaho[268]	X		X	
Illinois[269]			X	
Kansas[270]	X	X	X	X
Louisiana[271]	X	X		
Maryland[272]	X	X		
Montana[273]	X	X	X	X
Nebraska*[274]				
Nevada[275]	X	X	X	
New Hampshire*[276]				
New Mexico[277]	X	X	X	X
North Dakota[278]	X	X	X	X

Oklahoma[279]	X	X	X	X
Oregon[280]	X	X	X	
Pennsylvania[281]	X	X	X	X
Rhode Island*[282]				
Tennessee*[283]				
Texas[284]	X	X	X	X
Utah[285]	X	X	X	X
Virginia*[286]				
Washington[287]	X	X	X	X
West Virginia*[288]				
Wisconsin[289]	X	X	X	X
Wyoming[290]	X	X		X
Washington, D.C.*[291]				
30		**18**	**16**	**12**

*Have laws which only reference weather modification in passing.

Source: https://law.und.edu/_files/docs/ndlr/pdf/issues/96/1/96ndlr31.pdf

Pennsylvania - Weather Modification Policy

Title 35 - Chapter 77 Miscellaneous Provisions, Section 7701 (c)

Enactment. Chapter 77 was added November 26, 1978, P.L.1332, No.323, effective immediately.

§ 7701. Duties concerning disaster prevention.

(a) Governor.--In addition to disaster prevention measures included in the Commonwealth and local plans, the Governor shall consider on a continuing basis steps that could be taken to prevent or reduce the harmful consequences of disasters. The Governor, from time to time, shall make recommendations to the General Assembly, political subdivisions and other appropriate public and private entities as may facilitate measures for prevention or reduction of the harmful consequences of disasters.

(b) Department of Environmental Resources.--The Department of Environmental Resources, in conjunction with the Pennsylvania Emergency Management Agency, shall keep land uses and construction of structures and other facilities under continuing study and identify areas which are particularly susceptible to severe land shifting, subsidence, flood or other catastrophic occurrence. The studies under this subsection shall concentrate on means of reducing or avoiding the dangers caused by this occurrence or the consequences thereof.

(c) Other Commonwealth agencies.--At the direction of the Governor, and pursuant to any other authority and competence they have, Commonwealth agencies, including but not limited to those charged with economic recovery responsibilities in connection with floodplain management, stream encroachment and flow regulation, weather modification, fire prevention and control, air quality, public works, land use and land-use planning, construction standards, public utilities and energy, shall make studies of disaster prevention-related matters.

Source: https://www.palegis.us/statutes/consolidated/view-statute?txtType=PDF&ttl=35

We Do Not Consent

State Legislation To Ban Weather Modification / Geoengineering

1. Rhode Island H 5217 S 0405
2. Iowa S.F. 142 HB 927
3. Connecticut SB417
4. Minnesota SF2462 HF2310
5. Texas HB 1382
6. Arizona HB 2056 SB 1432
7. Indiana HB1335 SB364
8. Maine LD 825
9. New Hampshire HB 764
10. New York A05476
11. Michigan HB 4304
12. Vermont H.217
13. North Dakota HB 1514
14. Illinois SB1426
15. South Carolina H 3083
16. Oklahoma SB1021 SB 430
17. Mississippi SB 2005 HB 788
18. Wyoming HB 208
19. South Dakota SB 215
20. West Virginia SB 699
21. New Jersey S4161
22. Louisiana HB 608 **SB 46**
23. Pennsylvania SB 508 HB 1167
24. Idaho S 1065
25. Missouri SB 1318
26. **Florida SB 56 HB477 PASSED**
27. **Tennessee SB2691 PASSED**
28. Utah S.B. 126
29. Ohio H.B. No. 290 HB 272
30. Alabama HB248
31. Montana SB 473
32. North Carolina H326
33. Kentucky HB22 Kentucky SB62

Weather Modification = Small Scale
Geoengineering = Large Scale

Research Legislation: https://zerogeoengineering.com/documents/

Pennsylvania Constitution ARTICLE I § 27. Natural resources and the public estate.

The Constitution of Pennsylvania

§ 27. Natural resources and the public estate.

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

(May 18, 1971, P.L.769, J.R.3)

https://www.palegis.us/statutes/consolidated/view-statute?txtType=HTM&ttl=00&div=0&chapter=1&section=27&subsctn=0

PA SB 508 HB 1167
The Clean Air Preservation Act

Prohibiting solar radiation modification or sunlight reflection methods, cloud seeding and polluting atmospheric interventions within this Commonwealth; imposing duties on the Pennsylvania State Police and sheriffs; and imposing penalties.

PRINTER'S NO. 1293

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 1167 Session of 2025

INTRODUCED BY SCHLEGEL, BANTA, KAUFFMAN, HAMM AND GUENST, APRIL 7, 2025

REFERRED TO COMMITTEE ON ENVIRONMENTAL AND NATURAL RESOURCE PROTECTION, APRIL 7, 2025

AN ACT

Prohibiting solar radiation modification or sunlight reflection methods, cloud seeding and polluting atmospheric interventions within this Commonwealth; imposing duties on the Pennsylvania State Police and sheriffs; and imposing penalties.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Short title.

This act shall be known and may be cited as the Clean Air Preservation Act.

Section 2. Definitions.

The following words and phrases when used in this act shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"Air National Guard." The Pennsylvania Air National Guard, a reserve component of the United States Air Force.

"Artificial intelligence" or "AI." A field of science and technology encompassing systems and tools that can perform tasks typically requiring human intelligence such as learning,

PRINTER'S NO. 469

THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE BILL

No. 508 Session of 2025

INTRODUCED BY MASTRIANO AND BARTOLOTTA, MARCH 21, 2025

REFERRED TO AGRICULTURE AND RURAL AFFAIRS, MARCH 21, 2025

AN ACT

Prohibiting solar radiation modification or sunlight reflection methods, cloud seeding and polluting atmospheric interventions within this Commonwealth; imposing duties on the Pennsylvania State Police and sheriffs; and imposing penalties.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Short title.

This act shall be known and may be cited as the Clean Air Preservation Act.

Section 2. Definitions.

The following words and phrases when used in this act shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"Air National Guard." The Pennsylvania Air National Guard, a reserve component of the United States Air Force.

"Artificial intelligence" or "AI." A field of science and technology encompassing systems and tools that can perform tasks typically requiring human intelligence such as learning, reasoning, pattern recognition and decision making, often

Source: https://www.palegis.us/legislation/bills/text/PDF/2025/0/SB0508/PN0469
https://www.palegis.us/legislation/bills/text/PDF/2025/0/HB1167/PN1293

Pennsylvania 1968
WEATHER MODIFICATION - REGULATING RAIN MAKING ACT

Section 11. Research Projects; Safety.--(a) Research work within the province of this statute shall be permitted only when authorized by the board.

(b) Government and armed forces projects within the province of this statute must meet all the requirements of this act.

(c) No nucleating agent may be used in concentrations dangerous to man or causes environmental pollution as determined by the State Department of Health.

Section 12. Enforcement.--In order to enforce the provisions of this act, the Pennsylvania State Police shall, on request of the board, assign at least one trooper and one investigator to an area where unlawful cloud seeding is suspected. If such police request the same, the Pennsylvania Aeronautics Commission shall assign an airplane and pilot. Air samples shall be taken by the Pennsylvania Air Pollution Commission if requested by the State Police of the board. For such enforcement purposes, the State Department of Health shall furnish such technical services as the board may request.

Source: https://www.legis.state.pa.us/WU01/LI/LI/US/PDF/1967/0/0449..PDF

United Nations Conference on Environment & Development
Rio de Janerio, Brazil, 3 to 14 June 1992
AGENDA 21

United Nations
Sustainable Development

United Nations Conference on Environment & Development
Rio de Janerio, Brazil, 3 to 14 June 1992

AGENDA 21

CONTENTS

Support national, subregional, regional and international observation and research programmes in global atmospheric chemistry p. 315

Activities

35.12. The following activities should be undertaken:

a. Support development of an expanded monitoring network to describe cycles (for example, global, biogeochemical and hydrological cycles) and test hypotheses regarding their behaviour, and improve research into the interactions among the various global cycles and their consequences at national, subregional, regional and global levels as guides to tolerance and vulnerability;

b. Support national, subregional, regional and international observation and research programmes in global atmospheric chemistry and the sources and sinks of greenhouse gases, and ensure that the results are presented in a publicly accessible and understandable form;

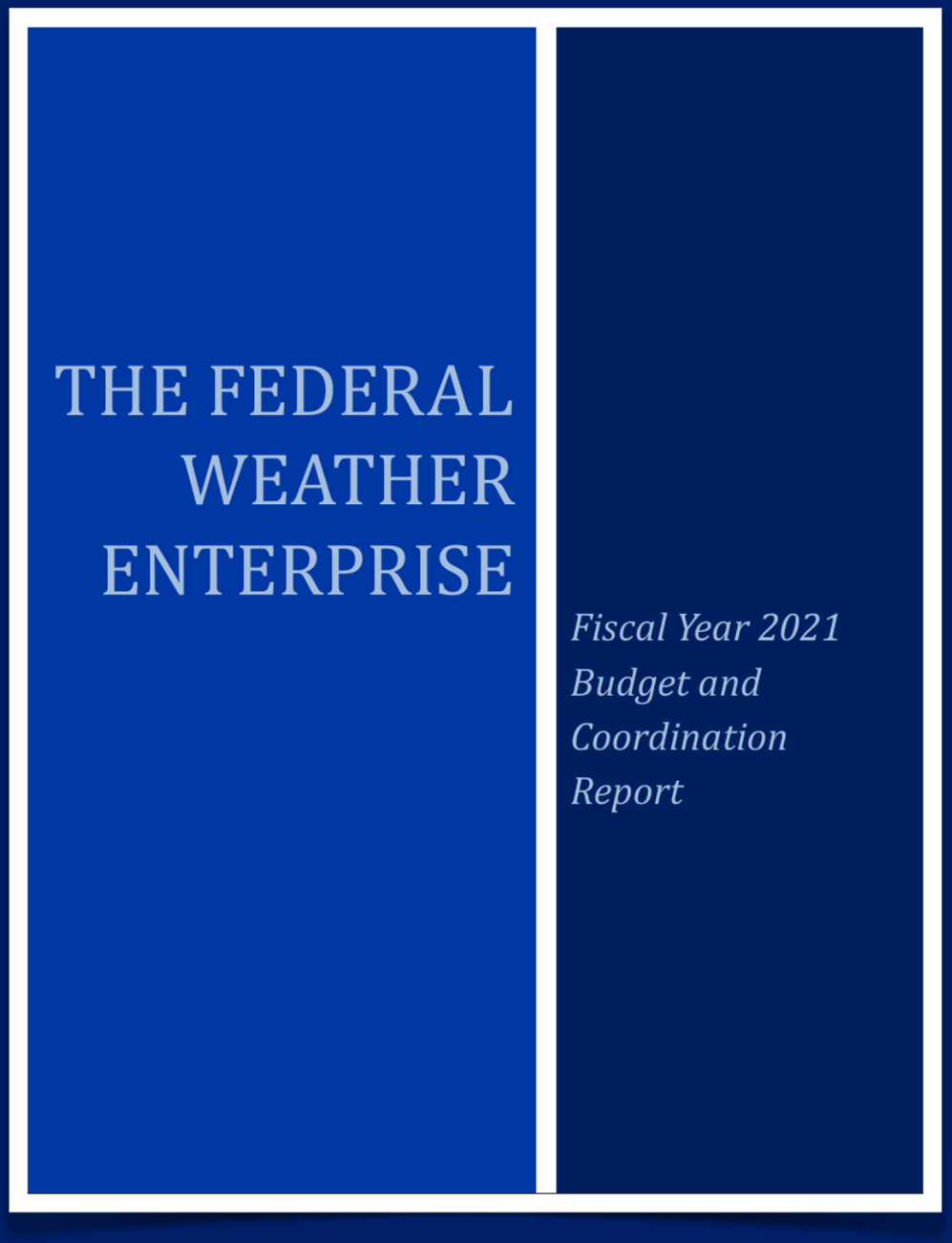
c. Support national, subregional, regional and international research programmes on marine and terrestrial systems, strengthen global terrestrial databases of their components, expand corresponding systems for monitoring their changing states and enhance predictive modelling of the Earth system and its subsystems, including modelling of the functioning of these systems assuming different intensities of human impact. The research programmes should include the programmes mentioned in other Agenda 21 chapters which support mechanisms for cooperation and coherence of research programmes on global change;

d. Encourage coordination of satellite missions, the networks, systems and procedures for processing and disseminating their data; and develop the interface with the research users of Earth observation data and with the United Nations EARTHWATCH system;

Source https://www.un.org/esa/sustdev/documents/agenda21/english/Agenda21.pdf

2021 The Federal Weather Enterprise

"Exercise leadership in coordinating U.S. efforts in international weather research priorities including the current World Meteorological Organization [WMO] Grand Challenges."



Plans, Federal Meteorological Handbooks, and Standards.

Goals and Objectives of the Strategic Plan for Federal Enterprise Weather Coordination (FY2018-2022)

The Strategic Plan for Federal Weather Enterprise Coordination describes six coordination goal areas, each with several objectives that were determined by the FCMSSR to be areas readily benefited by inter-agency coordination. The goals and objectives are as follows:

1. Observing Capabilities

1.1: Enable interagency discussions of observation system acquisition at the capability planning stage.

1.2 Provide forums to discuss and promote development, deployment, and sustainment of common-use systems through formalized interagency processes.

1.3 Coordinate data formatting, processing, communication, management, and stewardship standards to optimize the exchange, timeliness, usability, and value of earth observations.

3.2 Improve the consistency of decision support and risk management products, information, and services across the FWE.

3.3 Cross feed processes and lessons learned between agencies to improve decision support tools.

4. Research

4.1 Exercise leadership in coordinating U.S. efforts in international weather research priorities including the current World Meteorological Organization Grand Challenges.

4.2 Foster interagency collaboration of research initiatives starting at the planning stage.

4.3 Support efforts among FWE participants to co-ordinate task definition and sponsorship of National Academies research initiatives.

4.4 Expand interagency use of data and information for research.

4.5 Develop coordination processes that facilitate operational feedback to the research community, and that accelerate the integration of promising research from federal, commercial and academic partners into operational improvements in observing, forecasting, warning and threat communication. (added in 2019)

Source: https://www.icams-portal.gov/resources/icams/fedrep/2021_fedrep.pdf

2023 Congressionally Mandated Research Plan and an Initial Research Governance Framework Related to Solar Radiation Modification. Office of Science and Technology Policy

World Meteorological Organization's (WMO) World Climate Research Program

Potential Approaches to Cooperation

As with the reasons for cooperation and topics for cooperation, there are many options regarding "how" cooperation might be carried out.

In terms of the **type** of cooperation:

- At the more modest end of the spectrum, it could involve inviting foreign scientists into a U.S. research project (e.g., to enable access to high-performance computing capabilities for scientists from countries where they might otherwise not have such access), or having U.S. scientists join another country's research project.
- At the opposite end of the spectrum, it could entail a full blown, self-selected international consortium involving sustained collaboration on a wide range of research areas, as well as on associated modalities, e.g., cost sharing, data sharing, etc.

As elaborated below, another type of cooperation would involve the creation of an open international database that researchers would be encouraged to use to record their activities, data, and results.

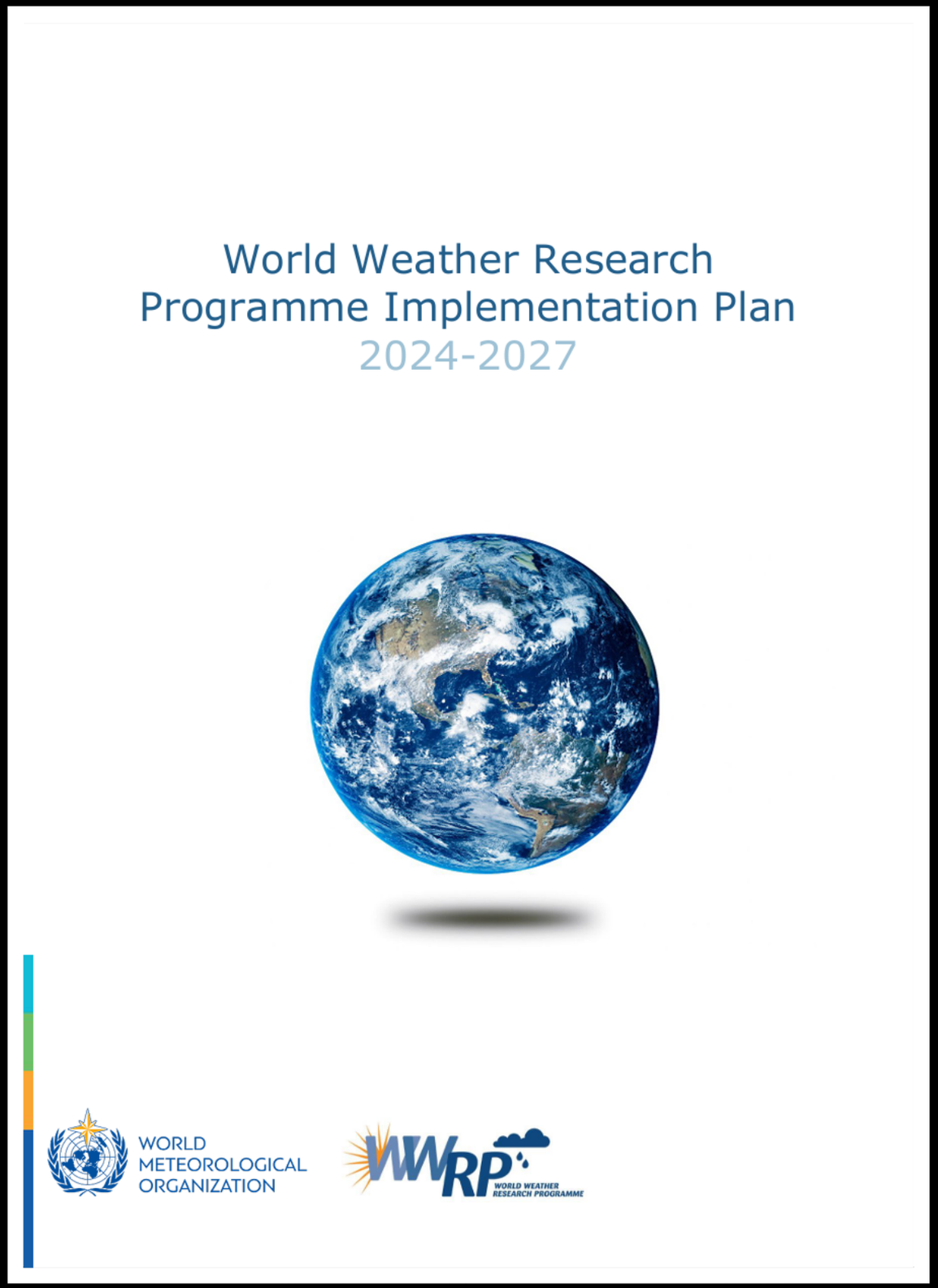
In terms of the **forum** for cooperation:

- Bilateral cooperation would not generally raise the issue of creation of a forum.
- Multilateral cooperation might take place through an existing forum/process (e.g., the World Meteorological Organization's World Climate Research Program) or pursuant to a new arrangement(s) created for this purpose.

Source: https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/06/Congressionally-Mandated-Report-on-Solar-Radiation-Modification.pdf

Source: https://www.wcrp-climate.org/gpex-overview

United Nations (UN) World Meteorological Organization (WMO)



Sources: https://library.wmo.int/viewer/66262/download?file=WWRP_ImplePlan_2024-2027-JN_2374_en.pdf&type=pdf&navigator=1
https://library.wmo.int/viewer/68578/download?file=1336_WMO-Strategic-Plan-2024-2027_en.pdf&type=pdf&navigator=1

United Nations A/79/L.2

General Assembly

Distr.: Limited
20 September 2024

Original: English

Seventy-ninth session
Agenda item 123
Strengthening of the United Nations system

Draft resolution submitted by the President of the General Assembly

The Pact for the Future

The General Assembly

Adopts the following Pact for the Future and its annexes:

The Pact for the Future

1. We, the Heads of State and Government, representing the peoples of the world, have gathered at United Nations Headquarters to protect the needs and interests of present and future generations through the actions in this Pact for the Future.

2. We are at a time of profound global transformation. We are confronted by rising catastrophic and existential risks, many caused by the choices we make. Fellow human beings are enduring terrible suffering. If we do not change course, we risk tipping into a future of persistent crisis and breakdown.

3. Yet this is also a moment of hope and opportunity. Global transformation is a chance for renewal and progress grounded in our common humanity. Advances in knowledge, science, technology and innovation could deliver a breakthrough to a better and more sustainable future for all. The choice is ours.

4. We believe that there is a path to a brighter future for all of humanity, including those living in poverty and vulnerable situations. Through the actions we take today, we resolve to set ourselves on that path, striving for a world that is safe, peaceful, just, equal, inclusive, sustainable and prosperous, a world in which well-being, security and dignity and a healthy planet are assured for all humanity.

5. This will require a recommitment to international cooperation based on respect for international law, without which we can neither manage the risks nor seize the opportunities that we face. This is not an option but a necessity. Our challenges are deeply interconnected and far exceed the capacity of any single State alone. They can only be addressed collectively, through strong and sustained international cooperation guided by trust and solidarity for the benefit of all and harnessing the power of those who can contribute from all sectors and generations.

24-15616 (E) 210924

20 September 2024

United Nations Pact for the Future Transforming Global Governance

16. We reaffirm our pledge, made on the occasion of the seventy-fifth anniversary of the United Nations, to reinvigorate global action to ensure the future we want and to effectively respond to current and future challenges, in partnership with all relevant stakeholders. We recognize that the well-being of current and future generations and the sustainability of our planet rests on our willingness to take action. To that end, in this Pact we commit to 56 actions in the areas of sustainable development and financing for development, international peace and security, science, technology and innovation and digital cooperation, youth and future generations, and transforming global governance.

17. We will advance implementation of these actions through relevant, mandated intergovernmental processes, where they exist. We will review the overall implementation of the Pact at the beginning of the eighty-third session of the General Assembly through a meeting at the level of Heads of State and Government. We are confident that, by then, we will be well on course towards the better and more sustainable future we want for ourselves, our children and all the generations who will come after us.

Sustainable development and financing for development

69. We recognize the contribution of all United Nations entities, agencies, funds and programmes in advancing digital cooperation, including but not limited to the International Telecommunication Union, the United Nations Conference on Trade and Development, the United Nations Development Programme and the United Nations Educational, Scientific and Cultural Organization, and invite them, as well as the Office of the United Nations High Commissioner for Human Rights, to support, within their existing mandates, implementation of this Compact. We recognize the role of the United Nations regional economic commissions and United Nations country teams in supporting regional and national stakeholders to advance digital transformation.

Source https://documents.un.org/doc/undoc/ltd/n24/252/89/pdf/n2425289.pdf

United Nations Pact for the Future September 2024

Transforming global governance

"A transformation in global governance is essential to ensure that the positive progress we have seen across all three pillars of the work of the United Nations in recent decades does not unravel. We will not allow this to happen."

V. Transforming global governance

64. Today, our multilateral system, constructed in the aftermath of the Second World War, is under unprecedented strain. It has had remarkable achievements in the past 80 years. But we are not complacent about the future of our international order, and we know that it cannot stand still. We will take action to strengthen and reinvigorate multilateralism and deepen international cooperation. We reaffirm unwavering commitment to international law, including the Charter, to address global challenges, some of which could overwhelm and threaten all of humanity. A transformation in global governance is essential to ensure that the positive progress we have seen across all three pillars of the work of the United Nations in recent decades does not unravel. We will not allow this to happen.

65. We must renew trust in global institutions by making them more representative of and responsive to today's world and more effective at delivering on the commitments that we have made to one another and our people. We renew our commitment to multilateralism and international cooperation, guided by the Charter and the principles of trust, equity, solidarity and universality. We will transform global governance and strengthen the multilateral system to help us to achieve a world that is safe, peaceful, just, equal, inclusive, sustainable and prosperous.

Action 38. We will transform global governance and reinvigorate the multilateral system to tackle the challenges, and seize the opportunities, of today and tomorrow.

66. We resolve to make the multilateral system, with the United Nations at its centre,

(c) Support the development, deployment and sustainable use of emerging and open-source technologies and support policies towards open science and open innovation and know-how for the achievement of the Sustainable Development Goals, especially in developing countries;

(d) Strengthen North-South cooperation, South-South and triangular cooperation, while taking into account different national circumstances, to build capacity for and improve access to science, technology and innovation, and to increase resources for the implementation of technical and scientific initiatives;

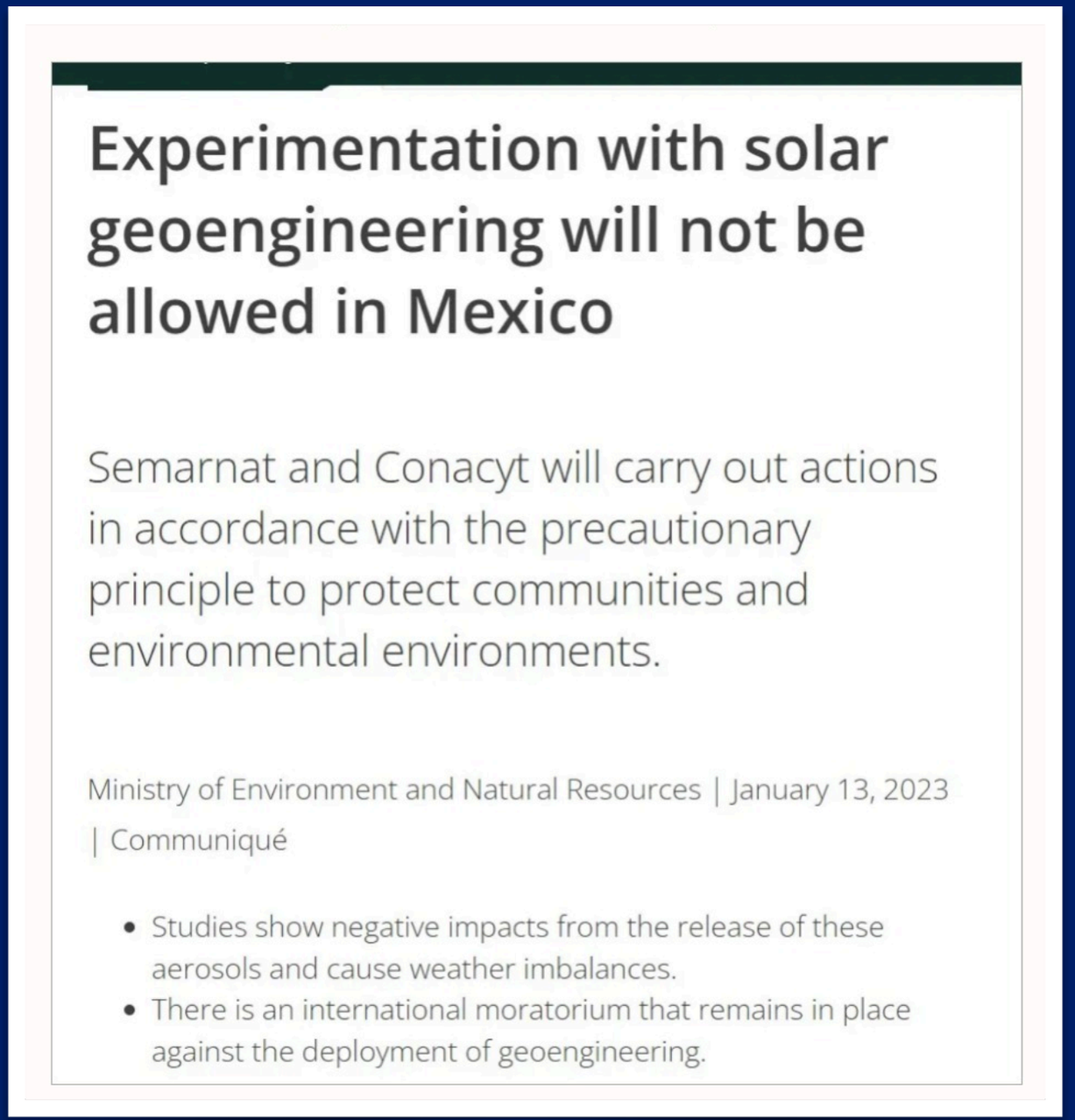
(e) Scale up financing from all sources for scientific research and research infrastructure that supports sustainable development and increase opportunities for research cooperation, especially in developing countries;

(f) Attract and support private sector investment in science, technology and innovation, and deepen public-private partnerships by fostering a conducive environment in developing countries that encourages investment and

"Support the development, deployment and sustainable use of emerging and open-source technologies and support policies towards open science and open innovation and know-how for the achievement of the Sustainable Development Goals..."

Source: https://documents.un.org/doc/undoc/ltd/n24/252/89/pdf/n2425289.pdf

2023 Government announces experimentation with solar geoengineering will not be allowed in Mexico



Experimentation with solar geoengineering will not be allowed in Mexico

Semarnat and Conacyt will carry out actions in accordance with the precautionary principle to protect communities and environmental environments.

Ministry of Environment and Natural Resources | January 13, 2023 | Communiqué

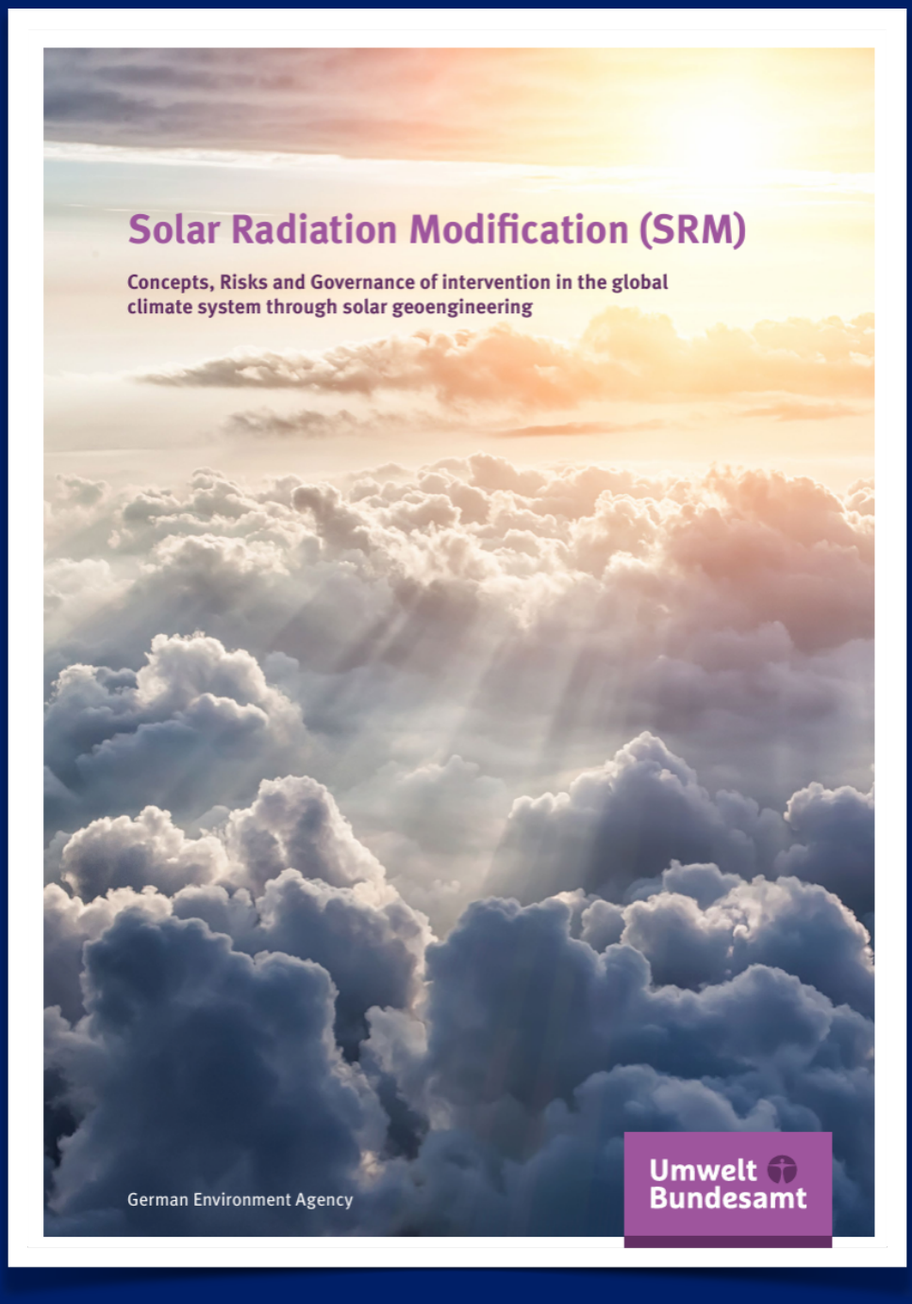
- Studies show negative impacts from the release of these aerosols and cause weather imbalances.
- There is an international moratorium that remains in place against the deployment of geoengineering.

"To prohibit and, where appropriate, stop experimentation practices with solar geoengineering in the country"

https://www.gob.mx/semarnat/prensa/la-experimentacion-con-geoingenieria-solar-no-sera-permitida-en-mexico

2025 German Environment Agency

Solar Radiation Modification (SRM) Concepts, Risks and Governance of intervention in the global climate system through solar geoengineering



Source: https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/uba_fb_geoengineering_srm_en_0.pdf

2024 World Economic Forum (WEF)

WORLD ECONOMIC FORUM

CLIMATE ACTION

Geoengineering: Building ethics, transparency and inclusion into climate intervention research

Oct 23, 2024

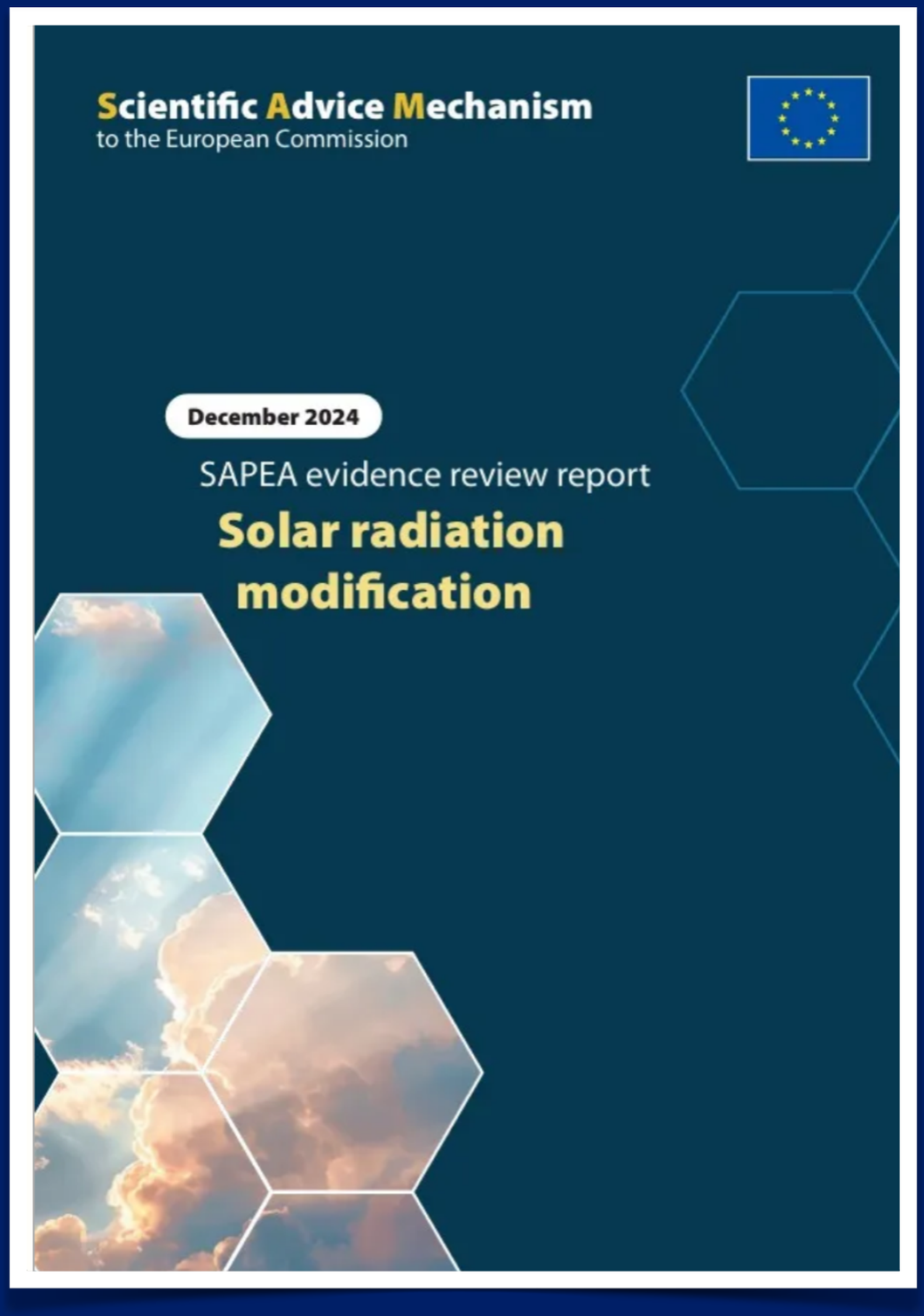
Source https://www.weforum.org/stories/2024/10/geoengineering-building-ethics-transparency-inclusion-climate-research/

2024 Pakistan Solar Radiation Modification Governance of Geoengineering Research

This policy brief is the result of a training workshop conducted in January 2024 in Islamabad, Pakistan, where the authors both spoke on SRM issues relating to the country's context. The authors outline the governance challenges associated with SRM, and provide an initial framework for Pakistani climate community members, civil society organizations, and policy and decision-makers to participate in the global discussions already underway on SRM. Finally, the authors have compiled recommendations on how the country should consider engaging with these upcoming climate intervention measures.

Source: https://sgdeliberation.org/publications/governance-of-solar-radiation-modification-developing-the-pakistan-perspective/

2024 EU Solar Radiation Modification Governance of Geoengineering Research



Source: https://op.europa.eu/en/publication-detail/-/publication/9c2ac367-b5de-11ef-acb1-01aa75ed71a1/language-en

2023 France Solar Radiation Modification: Governance of Research

Le site français du programme européen pour la recherche et l'innovation

Source: https://www.horizon-europe.gouv.fr/solar-radiation-modification-governance-research-32737

2018 Vatican Seminar on the Governance of Geoengineering

Source: https://c2g2.net/vatican-seminar-on-governance-ethical-dimensions-of-geoengineering/

Congressionally Mandated Research Plan and an Initial Research Governance Framework Related to Solar Radiation Modification

"For SAI [Stratospheric Aerosol Injection] experiments, of interest is how aerosols are formed and evolve in the real stratosphere in response to the injection of aerosols or aerosol-precursor gases (e.g., sulfur dioxide). A variety of aerosol materials could be examined." p.22

https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/06/Congressionally-Mandated-Report-on-Solar-Radiation-Modification.pdf

PHYS.ORG

Nanotechnology | Physics | Earth | Astronomy & Space | Technology | Chemistry | Biology | Other Sciences

Home / Earth / Earth Sciences

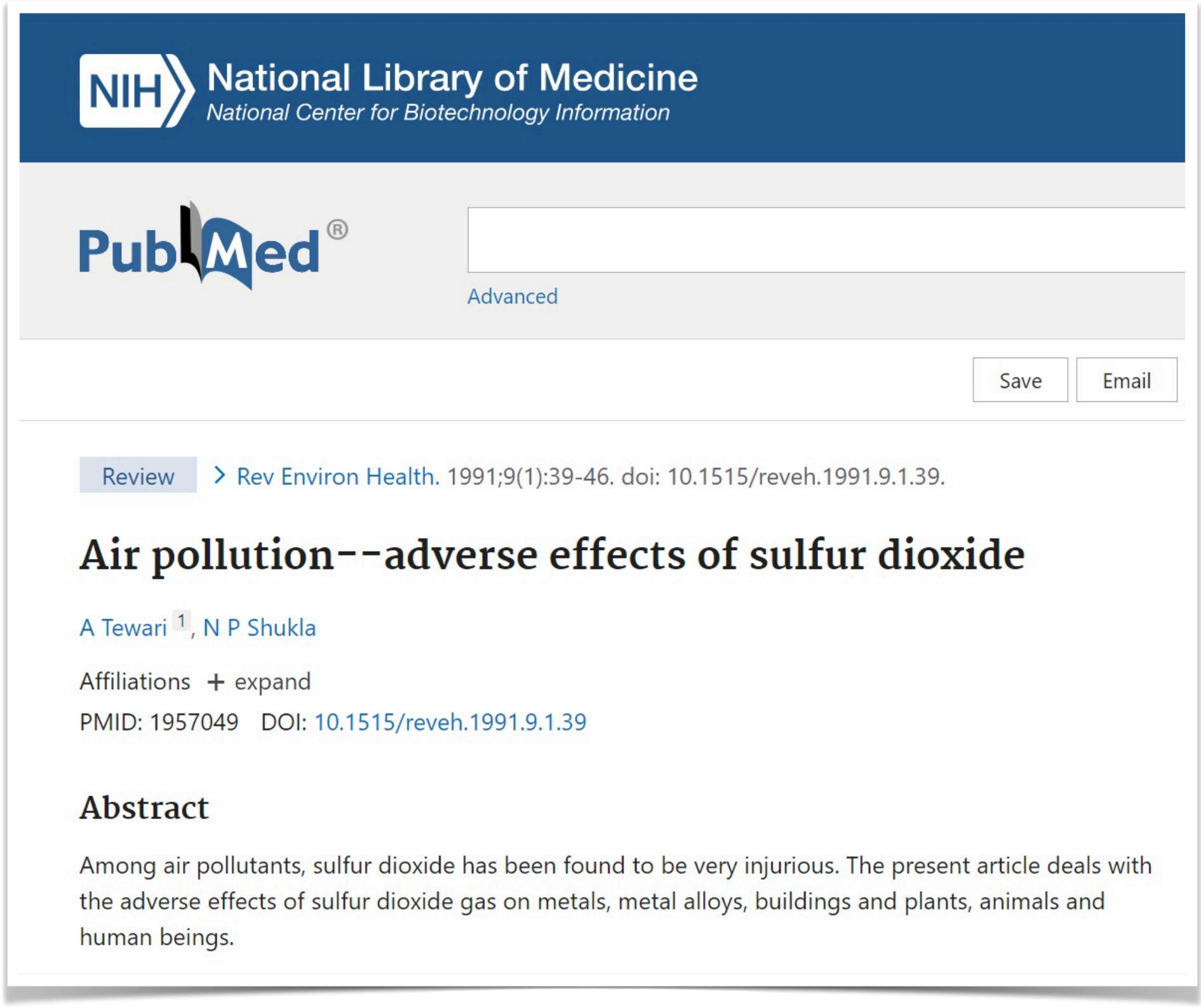
OCTOBER 30, 2018 REPORT

Models suggest injection of sulfate aerosols into the stratosphere could have unintended consequences

by Bob Yirka , Phys.org

Source: https://phys.org/news/2018-10-sulfate-aerosols-stratosphere-unintended-consequences.html

"Among air pollutants, sulfur dioxide has been found to be very injurious."



https://pubmed.ncbi.nlm.nih.gov/1957049/

An official website of the United States government Here's how you know

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Headquarters

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EPA Demands Answers from Unregulated Geoengineering Start-Up Launching Sulfur Dioxide into the Air

April 15, 2025

Contact Information
EPA Press Office (press@epa.gov)

WASHINGTON – The U.S. Environmental Protection Agency's (EPA) Office of Air and Radiation (OAR) submitted a demand for information to a start-up company calling themselves "Make Sunsets," which is launching balloons filled with sulfur dioxide (SO_2) seeking to geoengineer the planet and generate "cooling" credits to sell. This issue was initially identified in 2023 during the last Administration, but no action was taken to find out more about this questionable start-up and activity.

"The idea that individuals, supported by venture capitalists, are putting criteria air pollutants into the air to sell 'cooling' credits shows how climate extremism has overtaken common sense," ***said EPA Administrator Zeldin.*** *"Based on Make Sunsets' responses to our information request, we will look into all our authorities to ensure that we continue maintaining clean air for all Americans."*

Make Sunsets is already banned in Mexico. Their website states they want to scale this activity significantly and have already conducted over 124 deployments. It is unclear where the balloons are launched and where the SO_2 is from. Furthermore, it is not known if the company has been in contact with any state, local or federal air agencies. Thus, EPA is submitting a demand for information to get answers and plans to take additional actions as necessary.

Under Section 114 of the Clean Air Act (CAA), EPA is authorized to require facilities to provide information about their operations.

The agency is requesting a response within 30 days.

Sulfur dioxide has been regulated by EPA since 1971 as part of the National Ambient Air Quality Standard (NAAQS) program. Sulfur dioxide can harm human health and the environment. Short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult. People with pulmonary diseases, particularly children, are sensitive to the effects of SO_2. Additionally, SO_2 can react in the atmosphere leading to acid rain or form particles that harm health and impair visibility.

Last updated on April 15, 2025

"Sulfur dioxide can harm human health and the environment. Short-term exposures to SO2 can harm the human respiratory system and make breathing difficult. People with pulmonary diseases, particularly children, are sensitive to the effects of SO2. Additionally, SO2 can react in the atmosphere leading to acid rain or form particles that harm health and impair visibility."

Source: https://www.epa.gov/newsreleases/epa-demands-answers-unregulated-geoengineering-start-launching-sulfur-dioxide-air#:~:text=WASHINGTON%20%E2%80%93%20The%20U.S.%20Environmental%20Protection,and%20generate%20%E2%80%9Ccooling%E2%80%9D%20credits%20to

PubChem Sulfur Dioxide (Compound)

11 Safety and Hazards

11.1 Hazards Identification

11.1.1 GHS Classification

Showing 1 of 4 View More

Pictogram(s)	 Compressed Gas; Corrosive; Acute Toxic
Signal	**Danger**
GHS Hazard Statements	H314: Causes severe skin burns and eye damage [**Danger** Skin corrosion/irritation] H331: Toxic if inhaled [**Danger** Acute toxicity, inhalation]

https://pubchem.ncbi.nlm.nih.gov/compound/1119#section=Safety-and-Hazards

ARTICLES

Cloud Seeding, Wildfire Smoke Emissions, and Solar Geoengineering: Why Is Climate Modification Unregulated?

KAREN BRADSHAW* AND MONIKA U. EHRMAN**

ABSTRACT

This Article is the first to identify that companies and agencies systemically modify climatic airspaces through wildfire smoke emissions, weather modification (cloud seeding to cause rain), and solar geoengineering. Climate modification is not a conspiracy theory or a hypothetical: it is happening, and it is changing weather patterns. Yet, climate modification is almost wholly unregulated. Further, it is also not recorded or tracked in systemic ways. That is to say, even government agencies do not have comprehensive records of whether; how often; or how much climate modification is occurring. The data is simply not gathered, aggregated, or stored. As a result, major indicators that rely on climatic conditions—including the Environmental Protection Agency climate accounting—systemically overlook the effects of human-caused climate manipulation when accounting for changes in weather and air quality over time.

This lack of regulation is a serious problem: climate accounting fails to measure virtually unregulated activities undertaken by a mix of public and private actors. Without accurately accounting for these activities, scientists and agencies may be understating the effect of climate change on historical factors, including CO_2 emissions levels and rainfall. Such misinformation may lead to dramatic misstatements about the severity of the climate emergency. Inaccuracies in climate accounting

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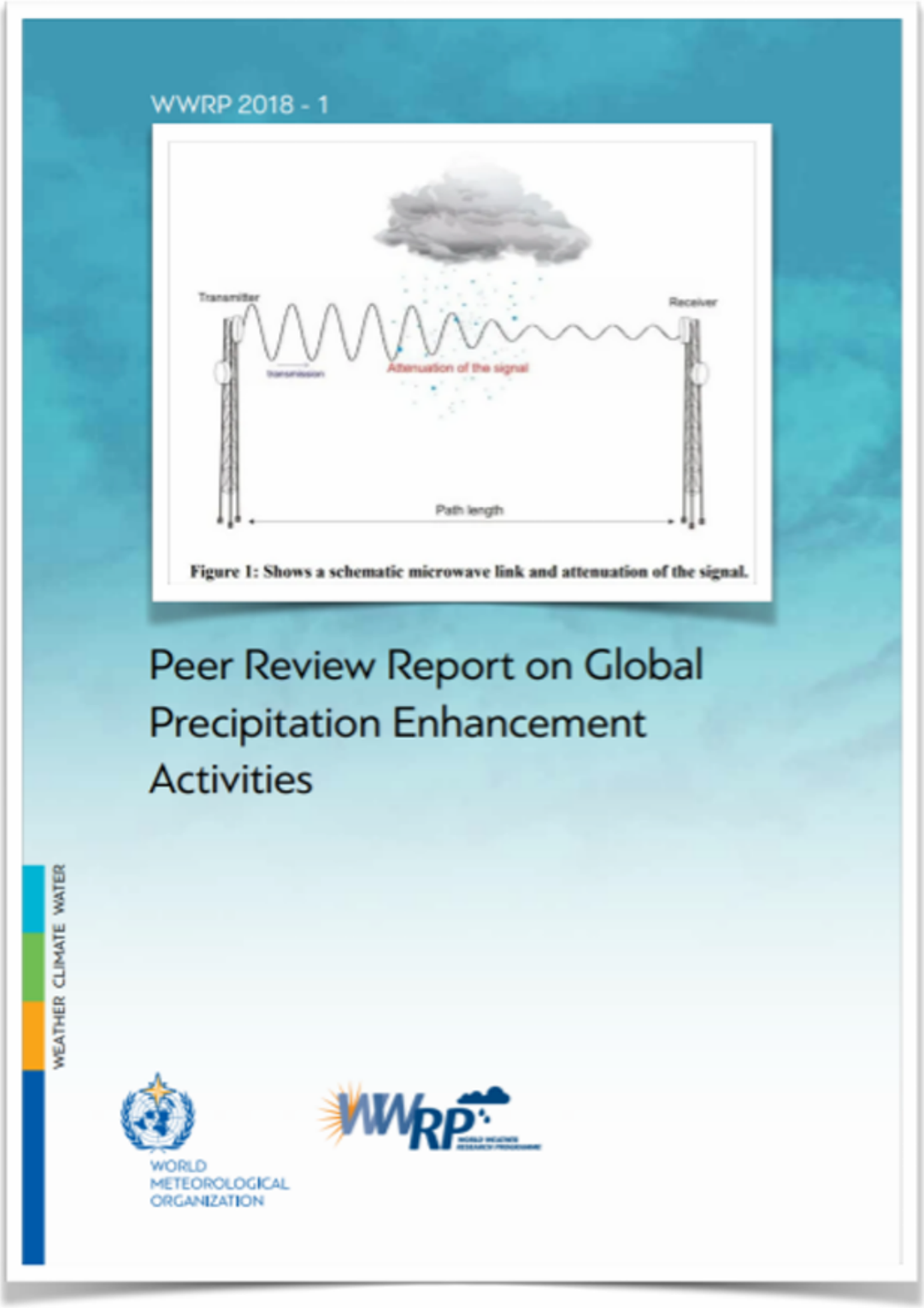
Source: https://www.law.georgetown.edu/environmental-law-review/wp-content/uploads/sites/18/2024/05/GT-GELR240001-BRADSHAW-and-EHRMAN.pdf

Global Precipitation Enhancement Activities -- Cell Tower Microwave Radiation for Global Weather Experiments & Global Monitoring

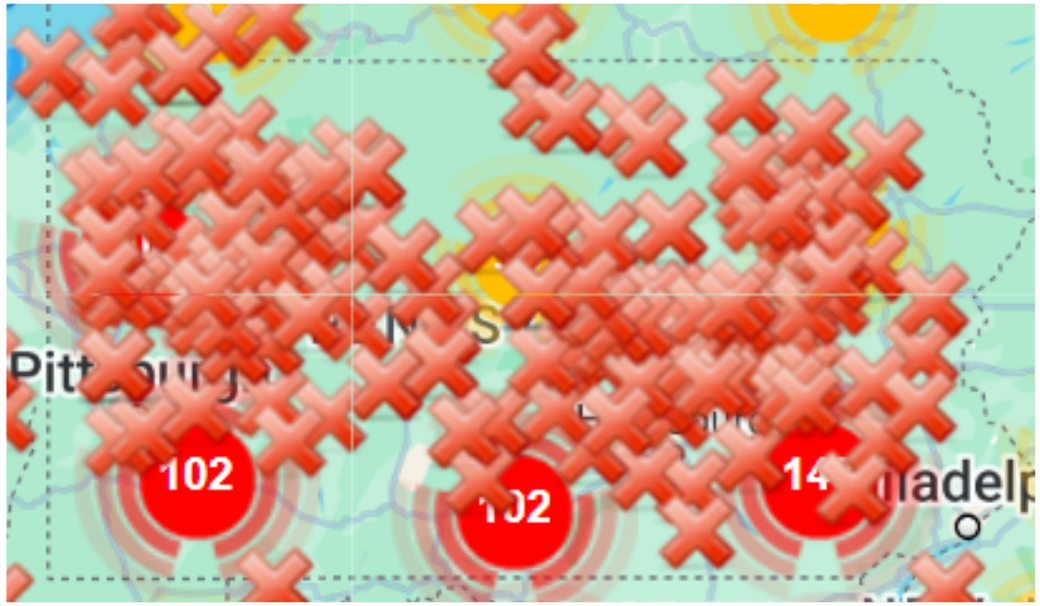
"An emerging technique for monitoring the spatial and temporal variability of precipitation is through measurement of the attenuation of microwave radiation associated with commercial cellular telephone networks..." p.38

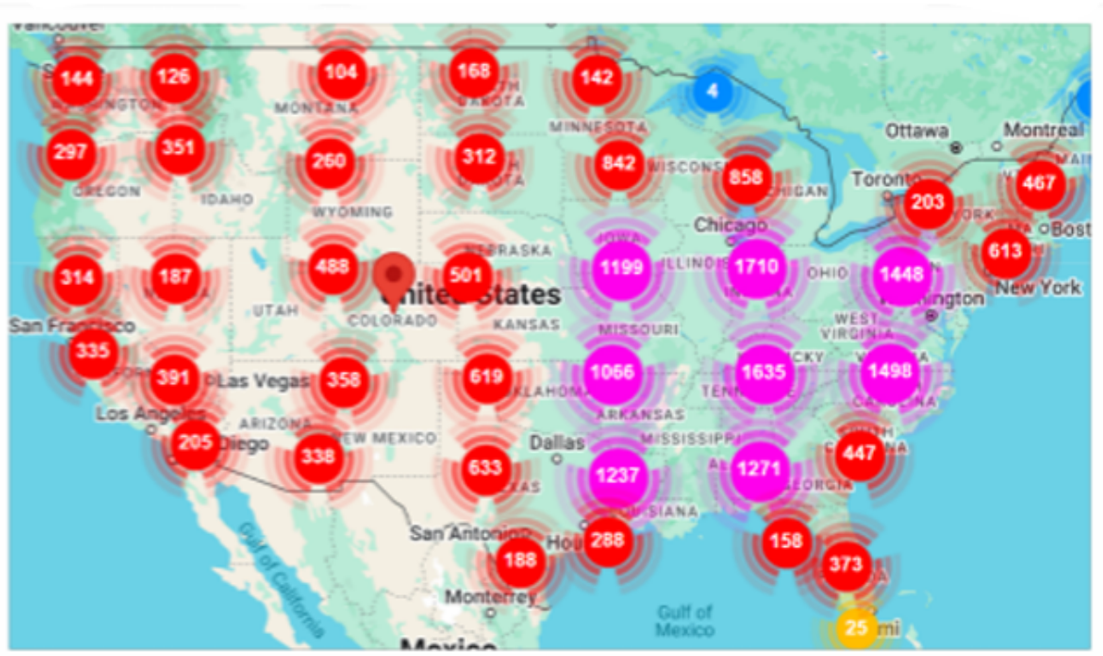


https://zerogeoengineering.com/wp-content/uploads/2018/10/FINAL_WWRP_2018_1-2.pdf

https://library.wmo.int/viewer/68578/download?file=1336_WMO-Strategic-Plan-2024-2027_en.pdf&type=pdf&navigator=1

https://www.researchgate.net/publication/323191160_RAINFALL_ESTIMATION_FROM_SIGNAL_ATTENUATION_OF_CELLULAR_PHONE_NETWORKMICROWAVE_LINK





https://www.scadacore.com/tools/rf-path/cell-tower-map-united-states/

https://insidetowers.com/cell-tower-news-towers-can-make-buck-meteorological-data-providers/

PA Act 50 and AT&T

Legislation to deploy wireless facilities in PA:
A Big win for the UN ITU and the wireless industry
&
A Big Loss for Pennsylvanians -
***Data Breaches**
***Involuntary Exposure to Pulsed RF/MW Radiation Pollution**
***Constant unwarranted surveillance and data collection.**
Act 50 is a barrier to local regulatory control and excludes the public from policy decisions related to health & safety.

Pennsylvania Municipal League

Home / Advocacy / Small Wireless Facilities Deployment

Small Wireless Facilities Deployment

Act 50 of 2021

Legislation providing for the deployment of small cell wireless facilities has passed both the House and Senate and was signed by the Governor on June 30 as Act 50 of 2021. The Act, considered the gold standard as the most municipal friendly small cell legislation in the country, is a win for local governments in the Commonwealth.

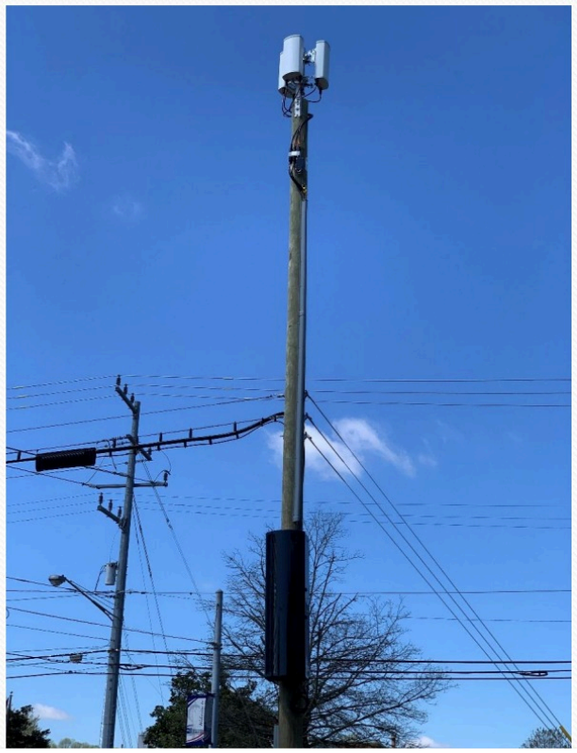
In previous sessions, The League opposed small cell infrastructure bills because provisions were more restrictive than the 2018 FCC Order and local zoning authority was preempted. As the new 2021/2022 legislative session began, The League and AT&T negotiated a compromise that upheld local authority while also easing small cell infrastructure deployment. We then went to our respective colleagues to gain their approval of the compromise.

As a united front, the wireless industry and local government presented the compromise to the General Assembly this spring asking for the language to remain as negotiated. The introduced legislation remained largely unchanged, except for a few provisions negotiated between the wireless industry and the unions that represent the workers installing small cell facilities.

Source: https://www.pml.org/advocacy/small-wireless-facilities-deployment/

Act 50 of 2021 PowerPoint

Examples of Small WCFs



Source: https://www.pml.org/wp-content/uploads/2021/09/PML-Powerpoint-8-5-21-FINAL.pdf

Study Finds High Radiofrequency Radiation Pollution From Cell Antennas

Conclusion:

-Elevated public exposure to the RF RMFs at the immediate vicinity

March 2022

-Cell phone base station antennas installed on top of the utility poles have placed the radiation source closer to humans

-RF exposure levels from mobile phone base station antennas near the street level reached high levels.

KOPPEL and HARDELL: MEASUREMENTS OF RADIOFREQUENCY ELECTROMAGNETIC FIELDS

Figure 7. Gervais Street: Cell phone base station antenna placed close to street level and causing high exposure to pedestrians and nearby café visitors (exposure scenario illustration). The antenna appears camouflaged and seemingly part of a utility pole. The measurer only discovered the antenna due to the high radiofrequency levels in the vicinity.

https://www.spandidos-publications.com/10.3892/wasj.2022.157#

Source: https://www.spandidos-publications.com/10.3892/wasj.2022.157#

RF Radiation Reading 21 October 2024 9:53 am
Pennsylvania State Capitol -- Harrisburg

N 3rd St, Harrisburg, Pennsylvania 17101

40.2623435,-76.8870258

Pennsylvania State Capitol 21 October 2024 9:53 AM Eastern Time

Radiofrequency Radiation (RF) PEAK I - 96.98 mW/m² [milliwatt per square meter] = 96,980 µW/m² [microwatt per square meter] PEAK II: 70.72 mW/m² [milliwatt per square meter] = 70,720 µW/m² [microwatt per square meter]

Magnetic Field / EMF PEAK: 0.7 mG [Milligauss]

Electric Field / EF PEAK: 2 V/m [Volts per meter]

*Institute for Building Biology identifies

>1,000 µW/m2 (RF Radiation) as EXTREME HAZARD

1.5 - 10 V/m as SEVERE HAZARD

0.2 - 1 mG as SLIGHT HAZARD

PEAK RF Radiation Reading: 70,720 µW/m² [microwatt per square meter]
>1,000 µW/m² / Extreme Hazard 0.002 µW/m² / 5 bars on cell phone

Radiofrequency Electromagnetic Microwave Radiation Exposures

We are constantly bombarded with pulsed, data-modulated, Radiofrequency Electromagnetic Microwave Radiation (RF-EMR) exposures due to the proliferation of cellular wireless, radio and television signals. The emergence of densified 4G/5G will exponentially increase these RF-EMR exposures, resulting in scientifically-established melatonin-suppression, immuno-suppression, immediate and direct neurological damages and acceleration of the growth of cancerous tumors. (In the table, below, **µW/m²** is millionths of a Watt spread over a one-square-meter area and **x** is a multiplier).

Power Output Scale	Consequences on Human Health (based on thousands of published studies)	µW/m²
0.0005x	EEG altered in humans; alters brain waves	0.000001
1	**FIVE BARS ON CELL PHONE**	0.002 <<<
15,000x	Sleep disorders, weakness, fatigue, pain	30
50,000x	Human sensation	100
500,000x	Decreased cell growth, humans	1,000
600,000x	Childhood leukemia	1,200
1,250,000x	Impaired motor function, reaction time, memory, attention	2,500
3,750,000x	Altered white blood cells, humans	7,500
5,000,000x	Headache, dizziness, fatigue, weakness, insomnia, humans	10,000
15,000,000x	Microwave hearing	30,000
25,000,000x	Leukemia, skin, melanoma, bladder cancer	50,000
50,000,000x	Impaired memory, visual reaction time, humans	100,000
5,000,000,000x	FCC Maximum Permissible RF-EMR Exposure Guidelines, General Pop.	10,000,000 <<<

Conclusion: The measurements above explain why **close proximity** to the proposed million+ of microwave cell towers for the U.S. would be hazardous to the health of U.S. citizens. We need only **0.002 µW/M² (-85 dBm)** of RF microwave radiation for wireless telecommunications service. A locality can, therefore, set a ***maximum output limit*** from all frequencies/ antennas from Wireless Telecommunications Facilities (WTFs) in the pubic rights-of-way or in close proximity to where people live, sleep and heal at **0.1 Watt of Effective Radiated Power (ERP)** because that provides -85 dBm signal strength at a ½-mile down the street, with five bars on a cell phone and the **capacity needed** for everyone to make a call.

A typical WTF in the public rights-of-way outputs Effective Radiated Power at 1,500-7,500 watts ERP, which is between 15,000 and 75,000 times more power than is necessary to make "five-bar" cellular connections.

Source: https://mystreetmychoice.com/docs/RF-EMR-Exposures-v5.pdf

"As the fourth largest source of pollution after air, water and noise, MW radiation induces many biological effects."

BMC Part of Springer Nature Search

MMR Military Medical Research

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Review | Open Access | Published: 17 February 2015

Effects of microwave radiation on brain energy metabolism and related mechanisms

Yan-Hui Hao, Li Zhao & Rui-Yun Peng

Military Medical Research **2**, Article number: 4 (2015) | Cite this article

Abstract

With the rapid development of electronic technologies, anxiety regarding the potential health hazards induced by microwave radiation (MW) has been growing in recent years. The brain is one of the most sensitive target organs for microwave radiation, where mitochondrial injury occurs earlier and more severely than in other organs. Energy metabolism disorders do play an important role during the process of microwave radiation-induced brain damage. In this paper, we will review the biological effects of microwave radiation, the features of brain energy supply and consumption and the effects of microwave radiation on mitochondrial energy metabolism and potential related mechanisms.

"The brain is one of the most sensitive target organs for microwave radiation, where mitochondrial injury occurs earlier and more severely than in other organs.

Energy metabolism disorders do play an important role during the process of microwave radiation-induced brain damage."

Source: https://mmrjournal.biomedcentral.com/articles/10.1186/s40779-015-0033-6

1978 EPA Report: Efforts to Protect the Public from Radiation

5901

RELEASED 4/5/78

REPORT BY THE U.S.

General Accounting Office

Efforts By The Environmental Protection Agency To Protect The Public From Environmental Nonionizing Radiation Exposures

The subject of nonionizing radiation has become a national concern because the population is receiving measurable exposures to the radiation. The health effects of such exposures even at low levels are controversial.

Currently, there is no official U.S. environmental public health standard for exposure to nonionizing radiation sources, because U.S. research programs have not yet developed sufficient data to establish standards for microwave and other nonionizing frequencies.

The Environmental Protection Agency is responsible for eliminating or reducing potentially harmful health effects by limiting exposures from radiation sources. This report discusses Agency activities to (1) evaluate the need for protection standards and (2) establish such standards where necessary.

UNITED STATES GENERAL ACCOUNTING OFFICE

CED-78-79
MARCH 29, 1978

scientists believe that exposure to low levels have effects on the human body. Considered mainly temporary central nervous system effects, symptoms attributed to low-level exposure include headache, weariness, dizziness, irritability, emotional instability, partial loss of memory, loss of appetite, cardiovascular effects, electroencephalogram changes, blood chemistry changes, changes in respiration, and possible genetic effects.

There are also some nonionizing radiation effects that result in interference with the operation of electronic equipment. Such effects can cause physical injury when they involve disruption of cardiac pacemakers; telemetering devices in hospitals; and critical communications used in aircraft guidance and police, fire, and rescue activities.

POTENTIAL RADIATION DANGER

The significance of this radiation to public health depends on the amount of the population exposed, the exposure time, the frequency and the power levels involved. EPA estimates the potential danger from nonionizing radiation has risen dramatically since 1945, when levels were very low. EPA estimates radiofrequency and microwave sources alone to be increasing by 15 percent annually. Sources producing radiation which impacts directly on the public include approximately 350 UHF TV stations, 600 VHF TV stations, 3,400 FM stations, and 4,400 AM stations; tens of thousands of search, navigation, and weather radars; hundreds of thousands of microwave communications towers; and millions of microwave ovens. EPA states that these sources result in measurable exposures to the population and are becoming a major concern because

POTENTIAL RADIATION DANGER

"The significance of this radiation to public health depends on the amount of the population exposed, the exposure time, the frequency and the power levels involved. EPA estimates the potential danger from nonionizing radiation has risen dramatically since 1945, when levels were very low…Sources producing radiation which impacts directly on the public include…tens of thousands of search, navigation, and weather radars; hundreds of thousands of microwave communications towers; and millions of microwave ovens…"

Source: https://www.gao.gov/assets/ced-78-79.pdf

Threat of CCP EMP Weapons

Research Report

LJ EADS, RYAN CLARKE, XIAOXU SEAN LIN

SEPTEMBER 2023

There's Darkness in the Distance: The Rising Threat of China's EMP Weapons to U.S. Defenses and Critical Infrastructure

"... the potential deployment of Chinese spy balloons equipped with EMP devices poses a direct threat beyond the immediate vicinity of Taiwan. If launched to float over U.S. territories, these balloons could act as covert delivery mechanisms for EMP detonations, severely compromising the nation's critical infrastructures and defense readiness. This elevated risk highlights the urgency for advanced surveillance, detection, and neutralization methods to safeguard against such aerial threats..." p. 9-10

"...Optical systems, notably fiber optics for communication, offer another avenue of defense, given their natural immunity to electromagnetic disturbances..." p.19

Source: https://static1.squarespace.com/static/6444894f2a886e74091c9e1b/t/64f9c058e780165a2ec3eb53/1694089305455/There%27s+Darkness+in+the+Distance+-+The+Rising+Threat+of+China%27s+EMP+Weapons+to+U.S.+Defenses+and+Critical+Infrastructure.pdf