



Presented at G. Edward Griffin's "Global Warming: an Inconvenient Lie"
<http://inconvenientlie.com/>

About Jim Lee:
<https://climateviewer.com/rezn8d/>

ClimateViewer 3D:
<http://climateviewer.org/3D/>

Reference Pages:
<https://climateviewer.com/geoengineering/>
<https://climateviewer.com/haarp/>
<https://climateviewer.com/chemtrails/>

Weather Modification and Geoengineering Timeline:
<http://climateviewer.org/geoengineering-timeline/> >
<http://weathermodificationhistory.com/> (coming soon)

Weather Modification History

1800 - 2017

Global warming alarmists and climate scientists would have you believe that the latest **extreme weather events can surely be blamed on rising CO₂ levels while never mentioning the effects of daily weather experiments overhead.**

WeatherModificationHistory.com

Coming soon

Weather Is Not Climate

“No, weather is NOT climate...even when it’s warm outside. But in case there’s a climate cultist in your life that insists otherwise, here are some facts about global warming, climate change, climate disruption, global weirding and vaguely-defined “extreme” weather that you can use to talk some sense into them.”

www.corbettreport.com/weather-is-not-climate/
James Corbett, The Corbett Report



Full Event: Hillary Clinton Rally with Al Gore in Miami, Florida (10/11/2014) Hillary Live Speech



<https://www.corbettreport.com/weather-is-not-climate/>
<https://www.youtube.com/watch?v=i1ytss9lFfs&t=391>
<http://www.livescience.com/50704-hurricane-drought.html>

100 Years Of Weather Control
and nobody knew...

Now you will

Did you know?

Weather Warfare was banned October 5, 1978

ENMOD

“Environmental Modification Convention”

aka

**Convention on the Prohibition of Military or Any Other Hostile Use of
Environmental Modification Techniques**

<https://climateviewer.com/2016/01/22/1978-enmod-convention-on-the-prohibition-of-military-and-other-hostile-use-of-environmental-modification-techniques/>

Opened for signature May 18, 1977

https://en.wikipedia.org/wiki/Environmental_Modification_Convention

<http://www.un-documents.net/enmod.htm>

Charles Mallory Hatfield – 1915-1916

The Moisture Accelerator

Created a secret mixture of 23 chemicals in large galvanized evaporating tanks that, he claimed, attracted rain.



https://en.wikipedia.org/wiki/Charles_Hatfield

<https://climateviewer.com/2014/03/25/history-cloud-seeding-pluviculture-hurricane-hacking/>

Charles Mallory Hatfield – 1915-1916

**Contracted to fill
Lake Morena
reservoir in San
Diego, California.**

**Never paid
\$10,000 contract
due to \$3.5
million flooding.**



https://en.wikipedia.org/wiki/Charles_Hatfield

In 1915 the San Diego city council, pressured by the San Diego Wide Awake Improvement Club, approached Hatfield to produce rain to fill the Morena Dam reservoir. Hatfield offered to produce rain for free, then charge \$1,000 per inch (\$393.7 per centimetre) for between forty and fifty inches (1.02 to 1.27 m) and free again over fifty inches (1.27 m). The council voted four to one for a \$10,000 fee, payable when the reservoir was filled. A formal agreement was never drawn up, though Hatfield continued based on verbal understanding. Hatfield, with his brother, built a tower beside Lake Morena and was ready early in the New Year.

On January 5, 1916 heavy rain began - and grew gradually heavier day by day. Dry riverbeds filled to the point of flooding. Worsening floods destroyed bridges, marooned trains and cut phone cables - not to mention flooding homes and farms. Two dams, Sweetwater Dam and one at Lower Otoy Lake, overflowed. Rain stopped January 20 but resumed two days later. On January 27 Lower Otoy Dam broke, increasing the devastation and reportedly causing about 20 deaths (accounts vary on the exact number).

Hatfield talked to the press on February 4 and said that the damage was not his fault and that the city should have taken adequate precautions. Hatfield had fulfilled the requirements of his contract - filling the reservoir - but the city council refused to pay the money unless Hatfield would accept liability for damages; there were already claims worth \$3.5 million. Besides, there was no written contract. Hatfield tried to settle for \$4000 and then sued the council. In two trials, the rain was ruled an act of God but Hatfield continued the suit until 1938 when two courts decided that the rain was an act of God, which absolved him of any wrongdoing, but also meant he did not get his fee.

The Birth of Cloud Seeding

November 13, 1946

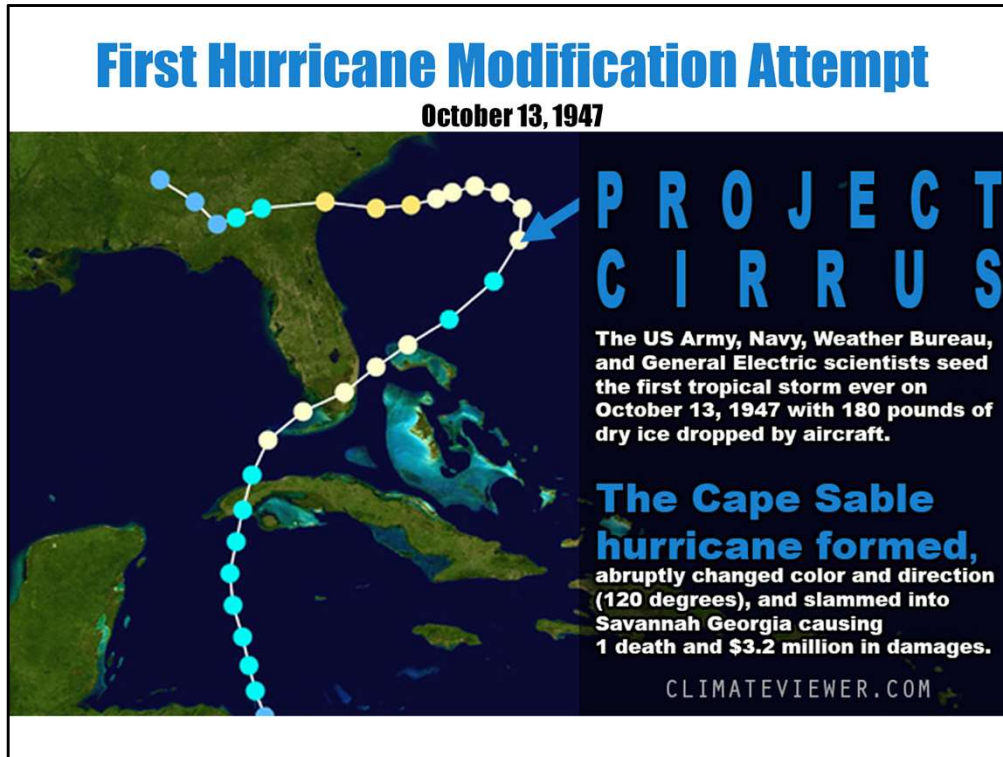
Vincent Schaefer, Irving Langmuir, and Bernard Vonnegut



https://en.wikipedia.org/wiki/Vincent_Schaefer

https://en.wikipedia.org/wiki/Irving_Langmuir

https://en.wikipedia.org/wiki/Bernard_Vonnegut



<http://www.dtic.mil/dtic/tr/fulltext/u2/006880.pdf>

http://en.wikipedia.org/wiki/Project_Cirrus

<https://climateviewer.com/2016/10/08/is-homeland-security-steering-hurricane-matthew/>

The cyclone was historically significant in that it was the first tropical cyclone to be modified as part of a multi-year operation called [Project Cirrus](#). In July 1946, General Electric (GE) scientists concluded after experimentation that dry ice seeding could induce heavy rainfall and thus ultimately weaken storms by cooling temperatures in the eye. To undertake Project Cirrus, **GE, the United States Army, the Office of Naval Research, and the U.S. Weather Bureau** functioned jointly on research and planning. Early on October 13, 1947, 200 pounds (3,200 oz) of dry ice were dropped throughout the storm, then located about 350 mi (560 km) east of Jacksonville, Florida. While the appearance of the clouds changed, the initial results of the seeding were inconclusive. Shortly after the seeding took place, the hurricane turned sharply toward the Southeastern United States. While the move the leading GE scientist later blamed upon the seeding, subsequent examination of the environment surrounding the storm determined that a large upper-level ridge was in fact responsible for the abrupt turn – [Wikipedia: 1947 Cape Sable hurricane](#) https://en.wikipedia.org/wiki/1947_Cape_Sable_hurricane

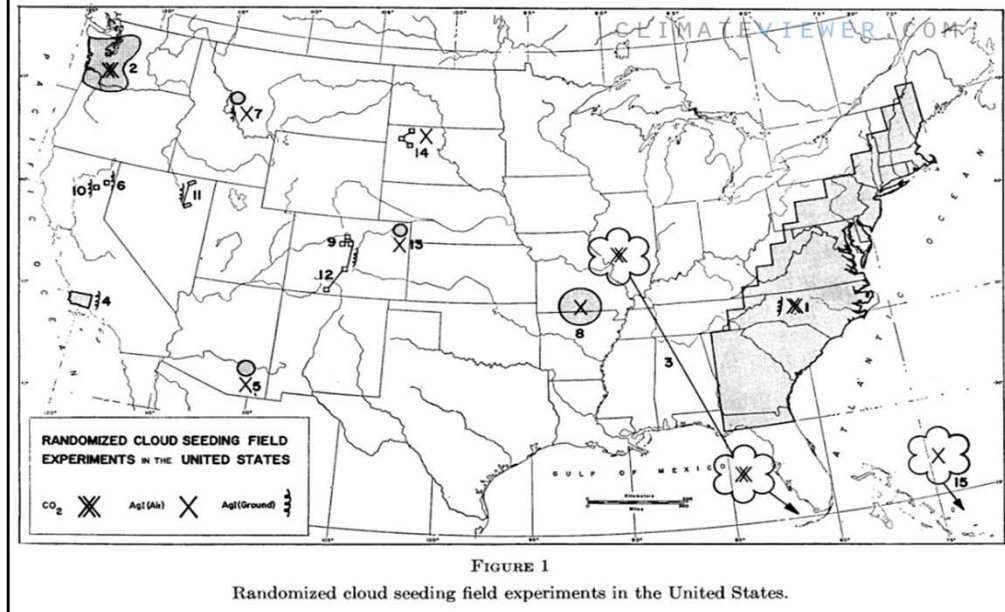
Irving P. Krick Invents Ground-based Cloud Seeder - 1949



https://en.wikipedia.org/wiki/Irving_P._Krick#Post-war_practice

http://www.winterwatershedconference.org/presentations_2015/History%20of%20Cloud%20Seeding%20in%20AZ%20James%20Walter%20SRP%20Jan%2029%202015.pdf

Cloud Seeding Projects 1952 – 1965



<http://projecteuclid.org/euclid.bsmmsp/1200513997>

Randomized cloud seeding in the United States. by Court, Arnold. Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability, Volume 5: Weather Modification, 237–251, University of California Press, Berkeley, Calif., 1967.

Jet Aircraft's "Artificial Clouds" Block Sun - 1958

Spokane Daily Chronicle, Saturday, Dec. 6, 1958. 11

Darn Sky Riders

Jet Trails Dim Sun, Palm Springs Grips

WASHINGTON, Dec. 6, (UPI)—The air force is long since resigned to the fuss about noise from its jets. Now comes Palm Springs, Calif., with a new complaint—that jet trails overhead are so thick they are beginning to blot out the sun.

Jimmy Cooper, manager of the Palm Springs Chamber of Commerce, outlined this "most serious and urgent problem" in a telegram to Representative D. S. (Judge) Saund, (D-Calif.), who has asked the air force what can be done.

"As you know," Cooper wired Saund, "our entire economy is dependent upon the tourist trade, which is predicated on our bright sunshine and warm climate. Recently our sky has resembled a mob of exuberant sky riders performing an aerial circus."

"The 'contrails' are not disappearing but are breaking down into a haze and creating a cloud-like appearance in the sky."

"With the unlimited expanse of barren, uninhabited land in the west, does such activity have to be centered over a resort area, which is offering the winter cloudless skies and unlimited sunshine?"

The air force, so far, is flabbergasted. No doubt in time it will recover its aplomb sufficiently to give Saund the usual answer to all congressional inquiries—

that the matter will be investigated.

The air force figures its jets couldn't blot out the sun short of a wing-towing mass flight like the European bombing raids of World War II. If anything like that is going on out of March air force base at Riverside, Calif., the nearest jet base to Palm Springs, air force officials here want to know all about it.

Shill Ousted by Minister

TOPEKA, Kan., Dec. 6. (AP)—Maurice D. Tulloch, who gave up the life of a Baptist minister to become a shill in a Las Vegas gambling casino, was stripped of his ministerial standing yesterday.

The action was taken by the executive committee of the Kansas Baptist convention.

Tulloch, a graying, spectacled man with crew-cut hair who looks closer to 40 than his 50 years, was pastor of the First Baptist church of Subetha, Kan. Last September 23, he walked out of a meeting of Baptist pastors in Hutchinson, Kan., and disappeared.

On November 26 he was located in Las Vegas, working as a shill—a gambling casino employee who poses as a customer to drum up trade.

Google news

Search Archive Search the Web about Search Maps

The Bulletin, Dec 6, 1958 Browse this newspaper Browse all newspapers CLIMATEVIEWER.COM

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New Fuss Raised Over Jet Trails

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"The 'contrails' are not disappearing but are breaking down into a haze and creating a cloud-

like appearance in the sky.

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The newspaper quoted what it said were fact that demonstrate that "certain circles in Iran, following the lead of external sources, are aiming at a deterioration of Soviet-Iranian relations and the sowing of mistrust between the two states."

that the matter will be investigated.

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Russians Claim Flank Exposed

MOSCOW (UPI)—Russia said today that the projected U.S.-Iranian military pact exposes the Soviet Union's southern frontier to "direct danger."

"The Communist Party newspaper Pravda said Russia could not remain indifferent to the situation."

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New Fuss Raised Over Jet Trails

As you know our entire economy is dependent upon tourist trade, which is predicated on our bright sunshine and warm climate. Recently our sky has resembled a mob of exuberant sky riders performing an aerial circus. The 'contrails' are breaking down into a haze and creating a cloud-like appearance in the sky. The Air Force, so far, is flabbergasted.

References

<https://news.google.com/newspapers?id=TVNYAAAIBAJ&sjid=gfcDAAAIBAJ&pg=5643%2C1072397>

<https://news.google.com/newspapers?nid=1338&dat=19581206&id=VwBYAAAIBA J&sjid=FfcDAAAIBAJ&pg=6955%2C1632252&hl=en>

Navy creates/destroys artificial clouds with Carbon Black dust - 1958

TOLEDO BLADE

One Of America's Great Newspapers

123rd Year

TOLEDO, OHIO, TUESDAY, SEPTEMBER 23, 1958

★ ★ ★ ★

Blue Skies Or Stormy Weather

Navy Scientist Creates Clouds, Breaks Them Up

New Technique May Make Rain

WASHINGTON, Sept. 23 (AP)—The navy said today it has created clouds and destroyed others by seeding them with ordinary carbon black.

A woman scientist who discovered the new method said experiments over southern Georgia produced a series of clouds at a cost of 18 cents a cloud.

Much experimentation must be done before the value of the new technique can be determined. It could open the way to cheap and reliable means of making rain, or of breaking up storm clouds, or of dissipating fog.

The technique was developed by Dr. Florence W. Van Straten, who livened up a desk job with the chief of naval operations by theorizing along new lines as to how rain is formed.

Earlier cloud-seeding methods using more expensive dry ice and silver iodine have

been confined to super-cooled clouds. The carbon method, Dr. Van Straten said, appar-



—Associated Press Wirephoto
DR. FLORENCE VAN STRATEN
Her cloud theory works

ently works with clouds at any temperature.

In the Georgia experiments, a navy airplane dropped carbon black in both solid and liquid-suspension form into clouds and into clear skies. Additional studies using radar-tracked balloons currently are under way over Chesapeake Bay.

Results indicate that when the carbon is sprayed or sprinkled into a clear sky it causes clouds to form, and when it is introduced into clouds it clears them up. Whether it actually produces rain in this process has not been determined definitely.

"We dropped carbon black, suspended in liquid, over a track a mile long and produced a solid line of clouds one mile long," Dr. Van Straten told a reporter.

"When we dropped 1 1/2-pound dry packages of carbon black, we produced single clouds with each drop."

The navy team seeded seven clouds with carbon, and dissipated each of them in from 2 1/2 to 20 minutes.

"Each cloud turned gray and

then rapidly disappeared," Dr. Van Straten said.

"Aside from the cost of the airplanes, we spent less than \$5 on the experiments in Georgia."

Carbon black, used in printer's ink and automobile tires, is nothing more than soot. It is available cheaply, in commercial quantities, as a by-product of the burning of natural gas.

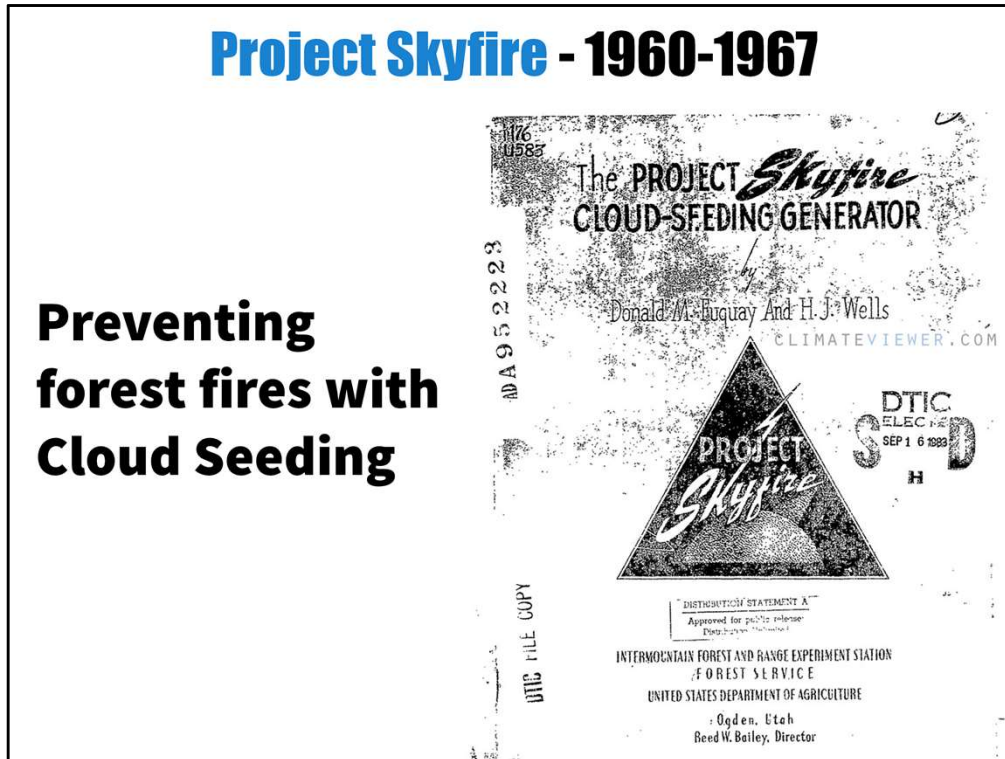
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WEATHER MODIFICATION HISTORY

<https://news.google.com/newspapers?id=aghPAAAAIBAJ&sjid=5gAEAAAAIBAJ&pg=1805%2C1211324>

Project Skyfire - 1960-1967

Preventing forest fires with Cloud Seeding



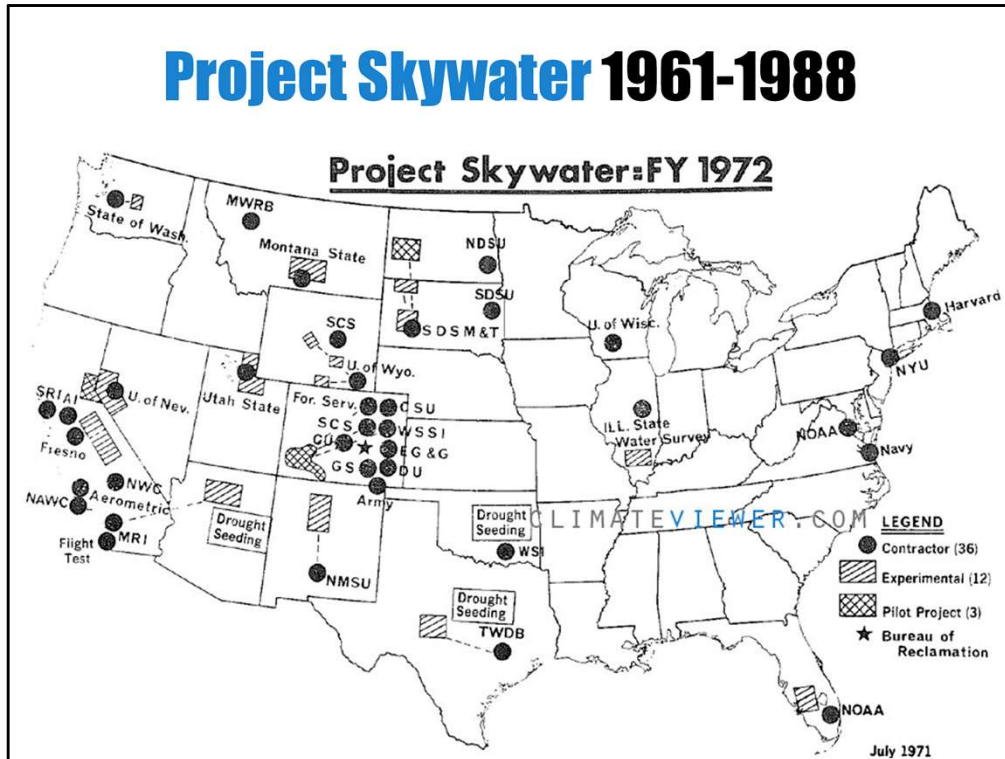
cloud seeding and lightning studies (forest fire prevention).

<http://www.dtic.mil/dtic/tr/fulltext/u2/a952223.pdf>

<http://gao.justia.com/national-science-foundation/1972/5/cloud-seeding-activities-carried-out-in-the-united-states-under-programs-supported-by-the-federal-agencies-b-100063/B-100063-full-report.pdf>

[http://journals.ametsoc.org/doi/pdf/10.1175/1520-0450\(1967\)006%3C0102%3ACSACTION%3E2.0.CO%3B2](http://journals.ametsoc.org/doi/pdf/10.1175/1520-0450(1967)006%3C0102%3ACSACTION%3E2.0.CO%3B2)

Project Skywater 1961-1988



West Coast USA mountain cloud-seeding with Irving P. Krick's ground-based seeders

<http://wri.nmsu.edu/publish/watcon/proc17/Kahan.pdf>

https://en.wikipedia.org/wiki/Irving_P._Krick#Post-war_practice

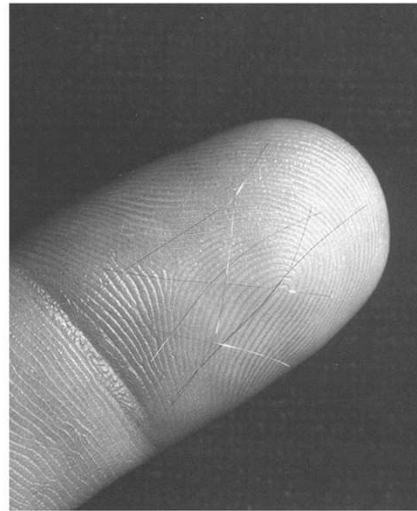
Project West Ford

October 21, 1961 - September 5, 1963

Creating an Artificial Ionosphere

**480,000,000 copper
dipole antennas
launched into orbit.**

Some are still up there.



http://en.wikipedia.org/wiki/Project_West_Ford

http://space.skyrocket.de/doc_sdat/westford.htm

Project Storm Fury

August 17, 1962 - 1983

NOAA
Hurricane
mitigation
cloud
seeding
experiments



<https://climateviewer.com/2013/11/08/hurricane-hacking-battling-the-big-ones-with-project-stormfury/>

http://www.aoml.noaa.gov/hrd/hrd_sub/sfury.html

[http://journals.ametsoc.org/doi/pdf/10.1175/1520-0477\(1985\)066%3C0505:PSASC%3E2.0.CO%3B2](http://journals.ametsoc.org/doi/pdf/10.1175/1520-0477(1985)066%3C0505:PSASC%3E2.0.CO%3B2)

http://www.thelivingmoon.com/45jack_files/03files/Project_Stormfury_NOAA.html

Plasma Seeding Begins – May 1963

Space Weather Modification

MAGNETOSPHERIC MODIFICATION 1037

“Create an artificial ion cloud in interplanetary space for studying the state of the interplanetary medium .. sounding rocket experiments”

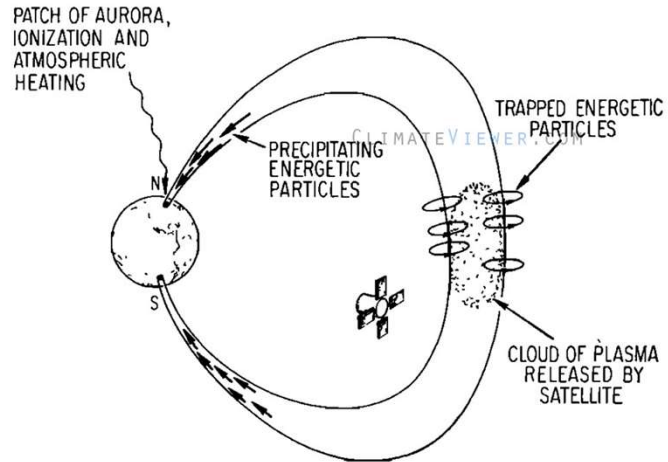


Fig. 1. Schematic view of a plasma injection experiment. (From Cornwall [1972].)

<http://www.sciencedirect.com/science/article/pii/0032063365901807>

<http://www.igpp.ucla.edu/public/mkivelso/Publications/019-RS008i011p01035.pdf>

Artificial Strontium and Barium Clouds in the Upper Atmosphere - 1964

ARTIFICIAL STRONTIUM AND BARIUM CLOUDS IN THE UPPER ATMOSPHERE

H. FÖPPL, G. HAERENDEL, L. HASER, J. LOIDL, P. LÜTJENS,
R. LÜST, F. MELZNER, B. MEYER, H. NEUSS and E. RIEGER,
Max-Planck-Institut für Physik und Astrophysik, Institut für extraterrestrische Physik,
Garching bei München

(Received 24 September 1966)

**“So far seven
different
experiments have
been carried out
with sounding
rockets in the
Sahara and in
Sardinia.”**

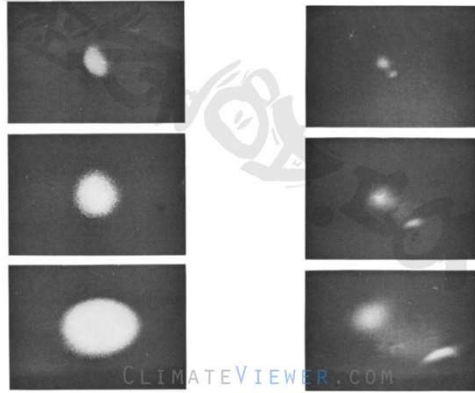


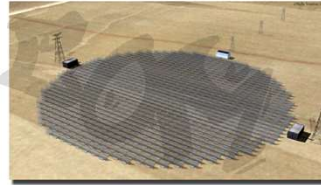
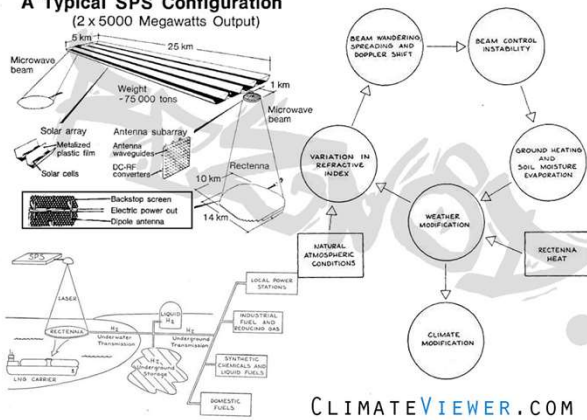
FIG. 2. (L). The cloud of July 6, 1964, in Sr I light at very near La Maddalena Sardinia, 4 min, 8 min, and 22 min after evaporation.

FIG. 3. (R). Two Sr I and Sr II clouds on November 27, 1964, 2 min 44 sec, 7 min 3 sec and 17 min 22 sec after evaporation.

<http://www.igpp.ucla.edu/public/mkivelso/Publications/019-RS008i011p01035.pdf>

SOLAR POWER SATELLITE 1968

A Typical SPS Configuration (2 x 5000 Megawatts Output)



CLIMATEVIEWER.COM

“as long as the program was called Solar Energy by the United States, it could not be considered a weapons project.”

<http://www.nss.org/settlement/ssp/library/1978DOESPS-MilitaryImplications-Ozeroff.pdf>

<http://r3zn8d.files.wordpress.com/2012/01/1978doesps-militaryimplications-ozeroff.pdf>

<https://climateviewer.com/2014/09/22/history-harp-heating-holes-heaven/>

Commercial Airlines To End “Smoke Pollution of the Skies” 1970

St. Petersburg Times - Jan 19, 1970 [Browse this newspaper](#) [Browse all newspapers](#)

12-A St. Petersburg Times, Monday, January 19, 1970 CLIMATEVIEWER.COM

U.S. To Clamp Down On Jet Pollution

WASHINGTON (AP) — The government will tell the nation's 43 commercial airlines Tuesday that they must end pollution of the skies with jet engine smoke by 1972 or face punitive legislation from Congress.

Top airline executives will get the blunt message of quick voluntary cleanup or else at a meeting called by Secretary of Health, Education and Welfare (HEW) Robert H. Finch and Secretary of Transportation John A. Volpe.

The executives will be told of the Administration's intention to push tough legislation already nearing passage unless they setas this final opportunity of doing the job themselves, HEW pollution fighters said.

MAINLY AT issue is the installation of a redesigned combustor — or burner can — on 3,000 existing commercial jet engines of one maker that reportedly account for 70 per cent of all smoke pollution from airliners.


The government estimates all existing Boeing 727, Boeing 737 and Douglas DC9 jetliners with the Pratt and Whitney JT8B engines can be converted to smoke-free operation by the end of 1972 at a cost of \$13.5-million.

The airline industry has told the Federal Aviation Administration it can do the job by the end of 1974, but only then at a cost of \$30-million.

THE SMOKE that pours from jet engines is caused by incomplete fuel burning in the standard combustor. The redesigned combustor eliminates smoke plumes almost completely, federal specialists say.

The government is limited to persuasion about jet pollution at present because it lacks specific congressional authorization to attack the problem.

California already has laid down a Jan. 1, 1971, deadline for ending jet pollution in that state. Additionally, Illinois and New Jersey have filed suits to force a quick cleanup.



JOHN A. VOLPE
... calls Tuesday meeting.



**Lawsuit by Illinois and New Jersey vs. Airline industry,
Settled out of court by Secretary of Transportation Volpe.
Install “Burner Cans,” reduce particulate emissions by 70%**

Illinois and New Jersey officials will not settle pollution suits against the nation's major airlines out of court, despite Tuesday's agreement between the airlines and the federal government to lean up the jet aircraft exhaust. The government will tell the nation's 43 commercial airlines Tuesday that they must end pollution of the skies with jet engine smoke by 1972 or face punitive legislation from Congress. Mainly at issue is the installation of a redesigned combustor – or burner can – on 3,000 existing commercial jet engines of one maker that reportedly account for 70 percent of all smoke pollution from airliners. ... thus the familiar “black belch” will be seen no more. A jet air plane in one landing and takeoff drenches the environment with as much soot as 2,500 automobiles produce in a entire day... soot, gases of carbon monoxide, aldehydes (irritants in smog), hydrocarbons, and nitrogen oxides. 10,000 tons of particulate matter (three airports)

<https://news.google.com/newspapers?nid=1982&dat=19700121&id=roJGAAAIBA&sjid=zywNAAAIBA&pg=2670%2C3106142&hl=en>

<https://news.google.com/newspapers?nid=888&dat=19700119&id=DUtSAAAIBA&sjid=1XsDAAAIBA&pg=6939%2C7171728&hl=en>

<https://news.google.com/newspapers?nid=1298&dat=19720912&id=M3MQAAAIBA&sjid=R4sDAAAIBA&pg=7178%2C1305490&hl=en>

<https://news.google.com/newspapers?nid=1964&dat=19710917&id=GMUiAAAIBA&sjid=WrcFAAAAIBA&pg=806%2C244201&hl=en>

Cloud Seeding Used As Weapon

30 Years After Invention

Make it rain on 'em

Operation Popeye

Weather Warfare over Vitenam

“Make mud, not war”

March 20, 1967 - July 5, 1972

**WC-130E with
Silver Iodide
dispenser rack**



**USAF 54th Weather Reconnaissance Squadron
(3 planes total)**

The following information about the 3 WC-130A aircraft comes from Tom Robison's on line article [WHISKEY CHARLIE](#). Tom is a former Met/ARE troop with both the 55th and 54th WRS. He is probably the foremost authority on all things WC-130, and most things dealing with weather reconnaissance (including atmospheric sampling).

"Few aviation writers and historians seem to be aware that there were three WC-130As. These three were originally trash-haulers, borrowed from TAC in late 1966 for use in Operation "Popeye", the rain-making mission in Southeast Asia, set to begin the following year. The intent of the mission was to create enough year-round rain to keep the Ho Chi Minh trails impassable with mud. Tests were conducted over Laos in 1966, and the operational missions began in March of 1967 from Udorn RTAFB, Thailand. They were flown by crews of the 54th WRS, rotated on a regular basis from Guam. In addition, 54th crews were sometimes called upon to conduct synoptic weather reconnaissance from Udorn over various areas of Southeast Asia, out to and including the Bay of Bengal.

The A-models were modified for weather reconnaissance, probably at WRAMA, with the AN/AMR-1 system. They were not configured for atmospheric sampling. Two were kept at Udorn, with the third rotating to and from Guam for maintenance, repair, and crew changes, from June 1967 through late 1970. When the third one was not enroute to/from Thailand, it was used for normal weather reconnaissance activities from Guam. In late 1970 the A's were replaced with three 1958 B-models, and the rain-making mission continued through mid-1972 with whichever B- or E-models were available from the 54th. After re-conversion to transport, the A's were transferred to Air Force Reserve units. During their

brief stint as rain-makers, they flew a total of 1435 "combat" sorties, and it is reported that at least one of them received battle damage. All three A-models wore the standard Southeast Asia camouflage colors and markings, but with no unit designations of any kind. In 1973, 56-0519 was given or loaned to the South Vietnamese Air Force, and it became one of the spoils of war on April 30, 1975. The last reliable sighting was in April of 1999, which reported her corroded and derelict at Tan Son Nhut Airport, Ho Chi Minh City.“
<http://www.awra.us/gallery-jan05.htm>

Operation Popeye

Weather Warfare over Vitenam

GOALS

- **Softening road surfaces**
- **Causing landslides along roadways**
- **Washing out river crossings**
- **Maintain saturated soil conditions beyond the normal time span.**



PICTURED: The Cold Cloud Modification System, successfully used in cold-fog mitigation; China Lake was for many years a world leader in weather modification for drought relief (GROMET), hurricane abatement (Cyclops, Stormfury), fog abatement (Foggy Cloud), and rainfall enhancement for military purposes (Project Popeye).

References

http://en.wikipedia.org/wiki/Operation_Popeye
<http://www.awra.us/gallery-jan05.htm>

Operation Popeye **BUSTED!**

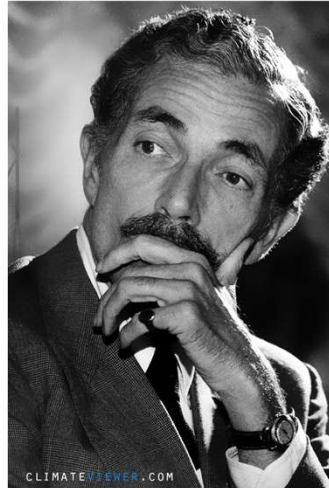
Reporter Jack Anderson



Saw a secret memo

Operation Popeye first came to public light in March 1971, when reporter Jack Anderson published a story based on a secret 1967 memo from the Joint Chiefs of Staff to President Johnson. The memo read: "Laos operations - Continue as at present plus **Pop Eye** to reduce the trafficability [sic] along infiltration routes & Authorization requested to implement operational phase of weather modification process previously successful tested and evaluated in some area".

Senator Claiborne Pell



Held secret hearings

Operation Popeye first came to public light in March 1971, when reporter Jack Anderson published a story based on a secret 1967 memo from the Joint Chiefs of Staff to President Johnson. The memo read: "Laos operations – Continue as at present plus Pop Eye to reduce the trafficability [sic] along infiltration routes & Authorization requested to implement operational phase of weather modification process previously successful tested and evaluated in some area". (US Senate, Subcommittee on Oceans and International Environment; 26 July 1972; p. 5). Mr DOOLIN: I speak in a personal capacity and not in my official capacity, Mr. Chairman. I have been in this job for 5 years, and I didn't have this clearance even though Southeast Asia is in my area of responsibility in the Office of the Secretary of Defense. The first I learned of it was, as the result of a Jack Anderson column, and I made inquiries at the time - simply for my own edification... [US Senate, Subcommittee on Oceans and International Environment; 20 March 1972; p. 111] <https://climateviewer.files.wordpress.com/2016/11/top-secret-hearings-before-the-subcommittee-on-oceans-and-international-environment-march-20-1974-enmod.pdf>
[https://en.wikipedia.org/wiki/Jack_Anderson_\(columnist\)](https://en.wikipedia.org/wiki/Jack_Anderson_(columnist)) -
https://en.wikipedia.org/wiki/Claiborne_Pell -
<http://www.nbcnews.com/id/39157420/ns/politics/t/nixon-plot-against-newspaper-columnist-detailed/>

Weather Warfare Politics

Weather modification meets full disclosure

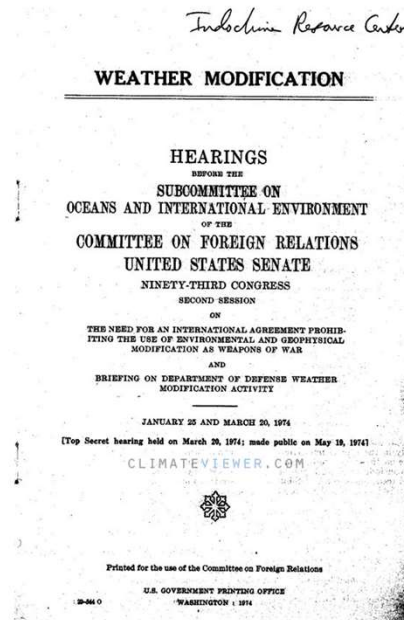
Top Secret Congressional Hearings

January 25, March 20, and July 26, 1974

Benjamin Forman, a senior Department of Defense lawyer, reiterated [Secretary of Defense Melvin] Laird's denial later that year:

"We have not, as Secretary Laird has previously said, ever engaged in weather modification activities in Northern Vietnam."

Discussing the need for ENMOD



Laird wasn't the only official whose 1972 weather modification testimony was untruthful. Benjamin Forman, a senior Department of Defense lawyer, reiterated Laird's denial later that year: "We have not, as Secretary Laird has previously said, ever engaged in weather modification activities in Northern Vietnam." At the same hearing, the Deputy Director of the US Arms Control and Disarmament Agency had similar difficulties. Asked by Senator Pell if rainmaking projects had been approved by Laos and Thailand, Philip Farley replied: "I don't wish even to admit, sir, that there were such projects."

http://web.archive.org/web/20120910101837/http://www.sunshine-project.org/enmod/US_Congr.html – The Limits of Inside Pressure: The US Congress Role in ENMOD, by The Sunshine Project. Retrieved 2012.

<https://climateviewer.com/2016/01/22/1978-enmod-convention-on-the-prohibition-of-military-and-other-hostile-use-of-environmental-modification-techniques/>

[US Senate, Subcommittee on Oceans and International Environment; 26 July 1972] REFERENCE MISSING... FILE NEEDED – CLASSIFIED

[US Senate, Subcommittee on Oceans and International Environment; January 25, March 20, 1972]

<https://climateviewer.files.wordpress.com/2016/11/top-secret-hearings-before-the-subcommittee-on-oceans-and-international-environment-march-20-1974-enmod.pdf>

<https://www.scribd.com/document/332402260/TOP-SECRET-Hearings-Before-the-Subcommittee-on-Oceans-and-International-Environment-March-20-1974-ENMOD>
HEARINGS BEFORE THE SUBCOMMITTEE ON OCEANS AND INTERNATIONAL ENVIRONMENT OF THE COMMITTEE ON FOREIGN RELATIONS UNITED STATES SENATE NINETY-THIRD CONGRESS SECOND SESSION ON THE NEED FOR AN INTERNATIONAL AGREEMENT PROHIBITING THE USE OF ENVIRONMENTAL AND GEOPHYSICAL MODIFICATION AS WEAPONS OF WAR AND BRIEFING ON DEPARTMENT OF DEFENSE WEATHER MODIFICATION ACTIVITY JANUARY 25 AND MARCH 20, 1974 [Top Secret hearing held on March 20, 1974; made public on May 19, 1974] Printed for the use of the Committee on Foreign Relations US GOVERNMENT PRINTING OFFICE PDF obtained from <http://www.vietnam.ttu.edu/virtualarchive/items.php?item=2390601002> in three parts. Combined by Jim Lee of ClimateViewer News <https://climateviewer.com/> and uploaded to Scribd for public domain consumption.

Weather Modification Reporting Laws

- **Weather Modification Reporting Act of 1972** – **Public Law 92-205** “AN ACT To provide for the reporting of weather modification activities to the Federal Government”
15 CFR Part 908 – “Maintaining Records and Submitting Reports on Weather Modification Activities”
- **National Weather Modification Policy Act of 1976** – **Public Law 94-490** “AN ACT To authorize and direct the Secretary of Commerce to develop a national policy on weather modification, and for other purposes”
15 U.S. Code Chapter 9A – “Weather Modification Activities or Attempts; Reporting Requirement”

<http://www.gpo.gov/fdsys/pkg/STATUTE-85/pdf/STATUTE-85-Pg735.pdf> –
<http://web.archive.org/web/20130118170030/http://uscode.house.gov/download/pls/15C9A.txt> – Public Law 92-205, Sec. 1, Dec. 18, 1971, 85 Stat. 735
<http://cfr.regstoday.com/15cfr908.aspx> – 15 CFR 908 – “Maintaining Records and Submitting Reports on Weather Modification Activities”
<http://web.archive.org/web/20121119043808/http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf17-4.pdf> – NOAA Form 17-4 “Initial Report on Weather Modification Activities” Expired 2008
<http://web.archive.org/web/20130218182517/http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf17-4a.pdf> – NOAA Form 17-4a “Interim Activity Reports and Final Report” Expired 2007
<http://www.gpo.gov/fdsys/pkg/STATUTE-90/pdf/STATUTE-90-Pg2359.pdf> Public Law 94-490 94th Congress “AN ACT To authorize and direct the Secretary of Commerce to develop a national policy on weather modification, and for other purposes” 1976
<https://www.law.cornell.edu/uscode/text/15/chapter-9A> – 15 U.S. Code Chapter 9A – “Weather Modification Activities or Attempts; Reporting Requirement”

Weather Modification Reporting Forms

Complete in accordance with instructions on reverse and forward copy:		Form Approved: OMB No. 0648-0025 Expires 12/31/2007	
TO: National Oceanic and Atmospheric Administration Office of Oceanic and Atmospheric Research 1315 East-West Highway SSMC-3 Room 11216 Silver Spring, MD 20910		NOAA FORM 17-4 (4-81) INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES (P.L. 205, 92 ND , CONGRESS)	
1. PROJECT OR ACTIVITY DESIGNATION, IF ANY		2. DATES OF PROJECT	
3. PURPOSE OF PROJECT OR ACTIVITY		a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN	
		b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES	
4. (a) SPONSOR		4. (b) OPERATOR	
NAME		NAME	
AFFILIATION CLIMATEVIEWER.COM		AFFILIATION	
PHONE NUMBER		PHONE NUMBER	
STREET ADDRESS		STREET ADDRESS	
CITY		CITY	
STATE		STATE	
ZIP CODE		ZIP CODE	
5. TARGET AND CONTROL AREAS (See Instructions)			
TARGET AREA		CONTROL AREA	
LOCATION		LOCATION	
SIZE OF AREA SQ.MI		SIZE OF AREA SQ.MI	
6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED, ETC. (See Instructions)			

<https://www.scribd.com/doc/255211130/Initial-Report-on-Weather-Modification-Activities-NOAA-Form-17-4-Nf17-4>

<https://www.scribd.com/document/255218096/Weather-Modification-Interim-Activity-Reports-and-Final-Report-NOAA-Form-17-4A-Nf17-4a>

<http://web.archive.org/web/20121119043808/http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf17-4.pdf> – NOAA Form 17-4 “Initial Report on Weather Modification Activities” Expired 2008

<http://web.archive.org/web/20130218182517/http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf17-4a.pdf> – NOAA Form 17-4a “Interim Activity Reports and Final Report” Expired 2007

Weather Modification Reporting Forms

NOAA FORM 17-4A (4-81)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				Form Approved OMB No. 0648-0025 Expires 12/31/2007							
INTERIM ACTIVITY REPORTS AND FINAL REPORT													
This report is required by Public Law 92-205; 85 Stat. 735; 145 U.S.C. 330b. Knowing and willful violation of any rule adopted under the authority of Section 2 of Public Law 92-205 shall subject the person violating such rule to a fine of not more than \$10,000, upon conviction thereof.													
NOAA FILE NUMBER													
<input type="checkbox"/> INTERIM REPORT <input type="checkbox"/> FINAL REPORT													
Complete in accordance with instructions on reverse and forward one copy to: National Oceanic and Atmospheric Administration Office of Oceanic and Atmospheric Research 1315 East-West Highway SSM C-3 Room 11216 Silver Spring, MD 20910													
REPORTING PERIOD													
FROM _____ TO _____													
MONTH	(a) NUMBER OF MODIFICATION DAYS	(b) NUMBER OF MODIFICATION DAYS PER MAJOR PURPOSE			(c) HOURS OF APPARATUS OPERATION BY TYPE		(d) TYPE AND AMOUNT OF AGENT USED						
		INCREASE PRECIPITATION	ALLEVIATE HAIL	FOG	OTHER	AIRBORNE	GROUND	SILVER IODIDE	CARBON DIOXIDE	UREA	SODIUM CHLORIDE	OTHER	
JANUARY													
FEBRUARY													
MARCH													
APRIL													
MAY													

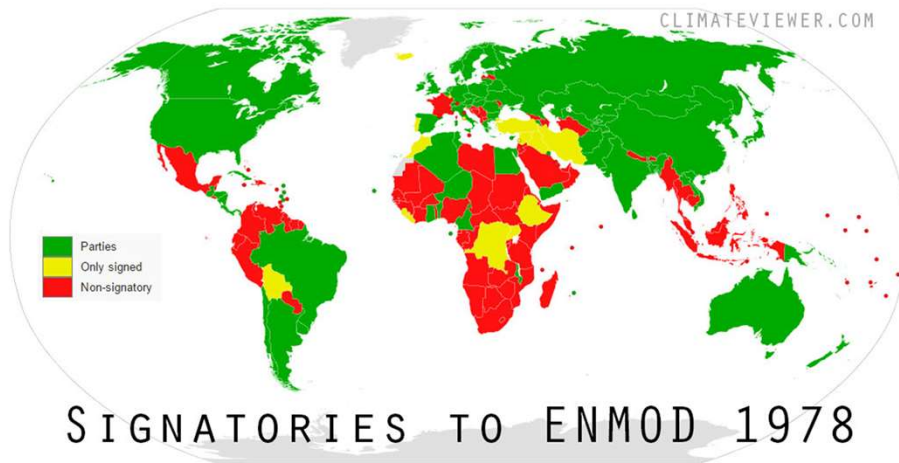
<https://www.scribd.com/doc/255211130/Initial-Report-on-Weather-Modification-Activities-NOAA-Form-17-4-Nf17-4>

<https://www.scribd.com/document/255218096/Weather-Modification-Interim-Activity-Reports-and-Final-Report-NOAA-Form-17-4A-Nf17-4a>

<http://web.archive.org/web/20121119043808/http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf17-4.pdf> – NOAA Form 17-4 “Initial Report on Weather Modification Activities” Expired 2008

<http://web.archive.org/web/20130218182517/http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf17-4a.pdf> – NOAA Form 17-4a “Interim Activity Reports and Final Report” Expired 2007

ENMOD Weather Warfare Ban



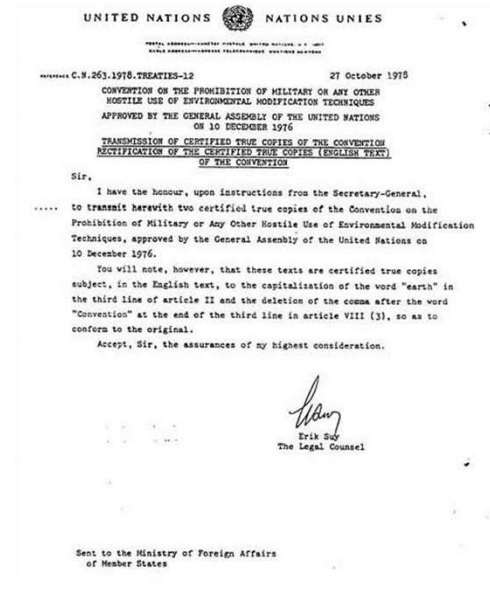
Opened for signature May 18, 1977
Signed October 5, 1978

They signed a piece of paper.

ENMOD Weather Warfare Ban

“Each State Party to this Convention undertakes not to engage in **military or any other hostile** use of environmental modification techniques having **widespread, long-lasting or severe effects** as the means of destruction, damage or injury to any other State Party”

REQUIRES HOSTILE INTENT



State Department representative Herman Pollack told the Congress at a 1972 hearing that: “the administration would not use techniques for climate modification for hostile purposes even should they become available”

“Primarily the work is aimed at giving the US Navy and the other armed forces, if they should care to use it, the capability of modifying the environment, to their own advantage, or to the disadvantage of an enemy.

We regard the weather as a weapon. Anything one can use his way is a weapon and the weather is as good a one as any.”

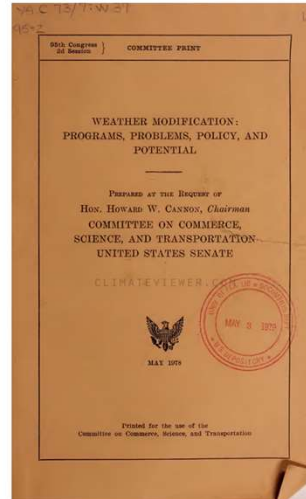
(Quoted in: US Senate, Subcommittee on Oceans and International Environment; 26 July 1972; p. 22, emphasis added).

<https://climateviewer.com/2016/01/22/1978-enmod-convention-on-the-prohibition-of-military-and-other-hostile-use-of-environmental-modification-techniques/>

Weather Modification: Programs, Problems, Policy, and Potential

May 1978

784 page accounting
of weather
modification activities
in the USA



Governments full accounting of all weather modification activities in the United States of America as a result of ENMOD.

“The report was prepared at my request by the Congressional Research Service under the direction of Dr. Robert Morrison, Specialist in Earth Sciences, Science Policy Research Division. We thank Dr. Morrison and the others involved in the study for their extremely thorough and scholarly report. Substantial material on almost all areas of weather modification are included and the report will provide the committee with an excellent reference source for future deliberations on the subject”

<https://archive.org/details/weatificat00unit>

<https://www.scribd.com/doc/275655074/WEATHER-MODIFICATION-PROGRAMS-PROBLEMS-POLICY-AND-POTENTIAL>

**Summary of
Weather
Modification
Activities
Reported
in 1979**

Table 6.--Summary of reported data for CY 1979

	<u>Federal</u>	<u>Nonfederal</u>	<u>Total</u>
(a) Modification days (cumulative)	147	1,091	1,238
(b) Modification days (increase precipitation)	113	974	1,087
(c) Modification days (hail suppression)	0	133	133
(d) Modification days (fog dispersal)	34	56	90
(e) Modification days (research)	54	22	76
(f) Airborne apparatus operation (hours)	355	2,043	2,398
(g) Ground-based apparatus operation (hours)	984	14,621	15,605
(h) Dry Ice (kg)	1,530	15,933	17,463
(i) Silver iodide, dispensed (kg)	224	678	902
(j) Liquid propane (gal)	11,077	0	11,077
(k) Polyelectrolyte (kg)	0	641	641

9

CLIMATEVIEWER.COM

Cloud seeding:

4,796 hours airborne

31,210 hours ground-based

<https://www.scribd.com/document/332125391/Summary-of-Weather-Modification-Activities-Reported-in-1979-NOAA>

ENMOD Has No Teeth

- **ENMOD is just an agreement (paper)**
- **No way to detect weather warfare**
- **No way to prove case**
- **No way to enforce punishment**



#WTF

It is really weak, really

Where Are We Today?

The Blue Gold Rush

*“Fresh water has been dubbed **“Blue Gold”** in many publications as potable **water will be to this century what oil was to the last century.**”*

The Twilight Zone

<https://climateviewer.com/2014/02/02/blue-gold-rush-future-water-wars-using-rivers-troposphere/>



<http://www.bloomberg.com/features/2015-cloud-seeding-india/>

<http://capitaldom.com/countries-are-spending-millions-to-control-the-weather-heres-why>

<http://www.businessinsider.com/china-sets-aside-millions-to-control-the-rain-2016-7>

http://www.dailymail.co.uk/travel/travel_news/article-2926736/Would-pay-100-000-guarantee-sunny-wedding-Travel-company-offers-cloud-bursting-service-banish-rain-couples-big-day.html

<http://www.oliverstravels.com/blog/guarantee-perfect-wedding-weather-olivers-travels/?olv=sGmkd0>

<https://www.theguardian.com/sustainable-business/2015/mar/11/rain-free-weddings-company>

Cloud Seeding Projects Worldwide



climateviewer.org/3D/

<http://climateviewer.org/3D/>

Homeland Security Hurricane Control

Hurricane Modification Workshop



Boulder

February 6-7, 2008

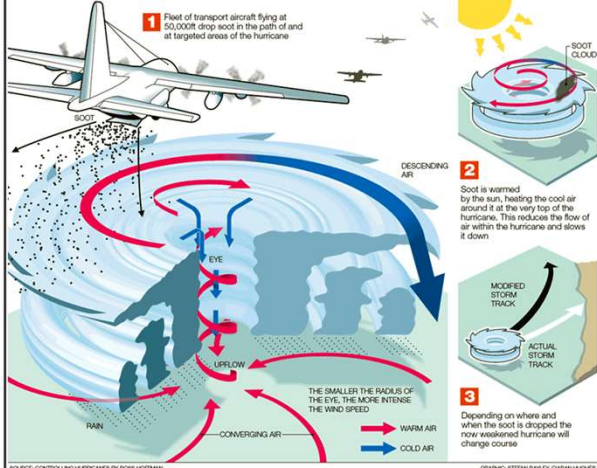
David Skaggs Research Center

Downstairs/Multipurpose Room

GC402



HOW TO HALT A HURRICANE



“The Hurricane Modification Workshop was initiated by Under Secretary Jay Cohen, DHS S&T, to investigate the possibility of minimizing the tremendous loss of life, property, and economic stability by reducing the destructive forces of a hurricane. This may be accomplished by **modifying its track, speed, winds, and rain.”**

<https://climateviewer.com/2013/11/08/hurricane-hacking-the-department-of-homeland-security-enters-the-weather-modification-business/>



1. Mr. William Laska – Department of Homeland Security
 2. Dr. Edward Hume – Johns Hopkins University Applied Physics Laboratory
 3. Dr. Joe Golden – National Oceanic and Atmospheric Administration
 4. Dr. William Cotton – Colorado State University
 5. Dr. Bob Kurzeja – Savannah River National Laboratory
 6. Dr. Alan Blumberg – Stevens Institute of Technology
 7. Dr. Jerald Carithers – University of Southern Mississippi
 8. Dr. William Woodley – Woodley Weather Consultants
 9. Dr. Jay Hobgood – Ohio State University
 10. Dr. Moshe Alamaro – Massachusetts Institute of Technology
 11. Dr. Stephen Salter University of Edinburgh
 12. Dr. Daniel Rosenfeld – Hebrew University
 13. Dr. Mark DeMaria – National Oceanic and Atmospheric Administration
 14. Dr. Edward Walsh – National Oceanic and Atmospheric Administration
 15. Dr. Isaac Ginis – University of Rhode Island
 16. Dr. John Latham – University Corporation for Atmospheric Research
 17. Dr. Patrick Fitzpatrick – Mississippi State University
 18. Dr. Sundararaman Gopalakrishnan – National Oceanic and Atmospheric Administration
 19. Ms. Paula Lantzer – Department of Homeland Security
- Not Pictured: Dr. Roelof Buintjes – National Center for Atmospheric Research

US Military Violating ENMOD

1994 FOIA – USAF Phillips Lab, USN China Lake

NON LETHAL WARFARE PROPOSAL

1. Title: Weather Modification Using Carbon Black

2. Type Effort: S&T

3. Proposed by: Phillips Laboratory (AFMC), Geophysics Directorate

4. Capability Sought and Uses to Which it Could be Put:

4.1. Increase Precipitation:

4.1.1. Bluddy dirt results to decrease transability.

4.1.2. Flood fields and small rivers.

4.1.3. Decrease troop comfort level.

4.1.4. Decrease transability by snow or freezing rain when the temperature condition

7. Project Plan - Major Milestones

a. Numerical model studies completed 1996

b. Engineering design of test engine mod. 1997

c. Ground-based field trials completed 1999

d. Airborne test and evaluation of prototypes completed 2001

e. Engineering design for airborne carbon black delivery system completed 2003

f. Operational capability 2004

8. Project Cost by Fiscal Year: (\$M)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
6.1	1.0	1.0	1.0							
6.2			1.5	1.5	1.5	1.5	1.5			
6.3				2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total	1.0	1.0	2.5	2.5	3.5	3.5	3.5	4.0	4.0	2.0

Rough estimate of total cost to operational capability: \$23.5M. Life cycle costs have not been estimated.

9. Organization Point of Contact: _____

TITLE: WEATHER MODIFICATION

TYPE OF EFFORT: S&T

PROPOSED BY: Code C2741 (Warhead Development Branch) NAWCWPNS, China Lake, CA 93555-6001

CAPABILITY & USES: (1) To impede or deny the movement of personnel and material because of rains-floods, snow-blizzards, etc. (2) To disrupt economy due to the effect of floods, droughts, etc.

TECHNICAL DESCRIPTION: By way of background, weather modification was used successfully in Viet Nam to (among other things) hinder and impede the movement of personnel and material from North Viet Nam to South Viet Nam. Since that time military research on Weather Modification has dwindled in the United States but not necessarily in the Soviet Union (Russia). Commercial weather modification is an active industry. The approach of this proposal is to (1) determine the current state-of-the-art technology in weather modification; (2) determine the applicability of current weather modification techniques and devices to military application and utilization; and (3) generate a E&MD Program Plan(s) to modify (or develop as necessary) weather modification techniques and devices suitable for military application. Current industrial techniques and devices are not likely to be suitable for military application or meet military requirements. The successful completion of the proposed effort and the follow-on E&MD program(s), will give the U.S. military a viable, state-of-the-art weather modification capability again.

RISK & LIMITATIONS: The risk is low in that this initial proposed study effort/investigation and its assumed E&MD follow-on involve the modification of commercial techniques and devices to meet military applications and not the development of new technology. The application of weather modification requires suitable meteorological conditions and, therefore, has that operational limitation. I know of no countermeasures.

PROJECT PLAN:

ACTIVITY/FY	FY-1	FY-2
Determine State-of-Art	1/2 man-year/\$65K	
Investigate Applicability to Military Utilization	3/4 man-year/\$100K	3/4 man-year/\$105K
Generate Follow-on Proposals [E&MD(s)]		1/2 man-year/\$70K
TOTALS	1 1/4 man-year \$165K	1 1/4 man-year \$175K

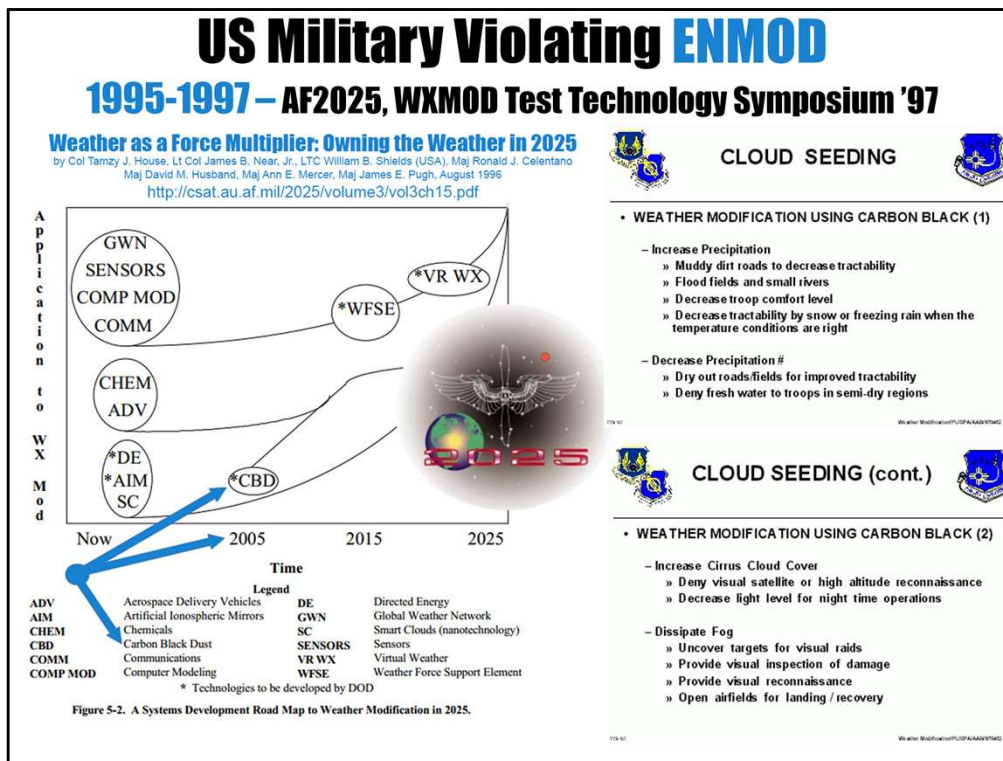
Jim Lee, "US military discusses future of Weather Warfare despite ENMOD ban," November 16, 2013.

<https://climateviewer.com/2013/11/16/us-military-discusses-future-of-weather-warfare-despite-enmod-ban/>

The U.S. Navy proposal to develop new weather modification weapons, Code C2741 (Warhead Development Branch) NAWCWPNS, China Lake, California, April 1994, <https://www.scribd.com/doc/256210692/Weather-Modification-US-Navy-FOIA-Non-Lethal-Warfare-Proposal-1994> ;

U.S. Air Force proposal to develop a theater-scale weather modification system using carbon black, Phillips Laboratory (AFMC) Geophysics Directorate. <https://www.scribd.com/doc/184741384/Weather-Modification-Using-Carbon-Black-Phillips-Laboratory-AFMC-Geophysics-Directorate>

Tamzy J. House et al. "Weather As A Force Multiplier: Owning the Weather in 2025," Air Force 2025, August 1996; see page 34, Figure 5-2, "A Systems Development Road Map to Weather Modification in 2025." <http://csat.au.af.mil/2025/volume3/vol3ch15.pdf>



Jim Lee, "US military discusses future of Weather Warfare despite ENMOD ban," November 16, 2013.

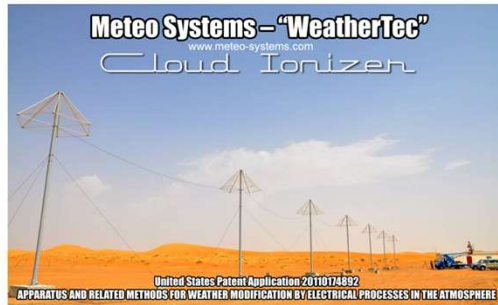
<https://climateviewer.com/2013/11/16/us-military-discusses-future-of-weather-warfare-despite-enmod-ban/>

The U.S. Navy proposal to develop new weather modification weapons, Code C2741 (Warhead Development Branch) NAWCWPNS, China Lake, California, April 1994, <https://www.scribd.com/doc/256210692/Weather-Modification-US-Navy-FOIA-Non-Lethal-Warfare-Proposal-1994> ;

U.S. Air Force proposal to develop a theater-scale weather modification system using carbon black, Phillips Laboratory (AFMC) Geophysics Directorate. <https://www.scribd.com/doc/184741384/Weather-Modification-Using-Carbon-Black-Phillips-Laboratory-AFMC-Geophysics-Directorate>

Tamzy J. House et al. "Weather As A Force Multiplier: Owning the Weather in 2025," Air Force 2025, August 1996; see page 34, Figure 5-2, "A Systems Development Road Map to Weather Modification in 2025." <http://csat.au.af.mil/2025/volume3/vol3ch15.pdf>

Cloud Ionizers – Electric Rainmaking

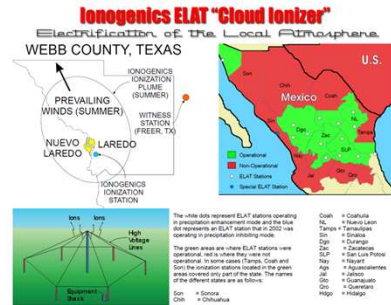


CLEAR SKY MANAGER has been tested on various occasions such as in Russia (Vladivostok, October 2003) as well as put into practice with success in DUBAI in the period September 2006-January 2007.



Ionizer installed on a flat roof in Dubai (2006)

Dubai skyline during tests in 2006



<https://climateviewer.com/2014/03/26/cloud-ionization-electric-rainmaking-laser-guided-weather-modification/>
<https://climateviewer.com/2014/02/02/blue-gold-rush-future-water-wars-using-rivers-troposphere/>

Cloud Ionizers – Electric Rainmaking



ELECTROMAGNETIC WEATHER CONTROL IS HERE!

"Fresh water has been dubbed "Blue Gold" in many publications as potable water will be to this century what oil was to the last century.

While large efforts and money are being allocated for localized weather modification, SciBlue is looking to use the tropospheric rivers to deliver rain to parched areas of the world now and possibly abatement operations of severe weather in the near future."

David Kutchinski,
CEO SciBlue, Inc.
US. Air Force Company
La Junta, Colorado, USA

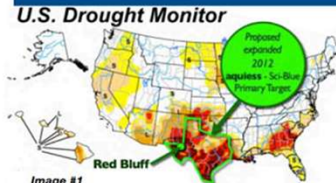


Image #1
Primary Target Red Bluff, Secondary Target: Texas



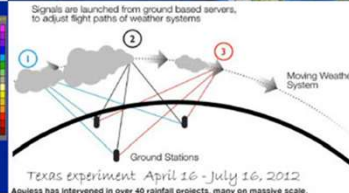
Image #3
7 Day anomaly

Project Start
16th April 2012

aquiess is offering sovereign states an augmented rainfall capability as part of its new regional 'tool-box' - to strengthen economies, replenish dry-land agriculture and improve food security - David Miles CEO

- <https://climateviewer.com/2015/05/28/how-texas-stole-californias-rain/>
- <https://climateviewer.com/2014/03/26/cloud-ionization-electric-rainmaking-laser-guided-weather-modification/>
- <https://climateviewer.com/2014/02/02/blue-gold-rush-future-water-wars-using-rivers-troposphere/>

The proprietary weather modification system operates by utilizing 'resonance' signals to divert oceanic atmospheric-rivers into areas experiencing severe drought



Signals are launched from ground based servers, to adjust flight paths of weather systems.

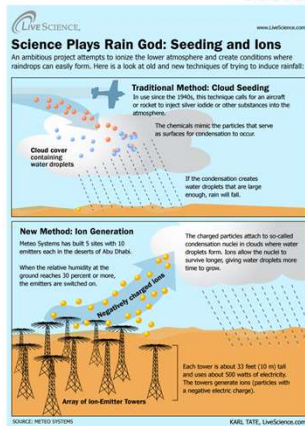
- <https://climateviewer.com/2015/05/28/how-texas-stole-californias-rain/>
- <https://climateviewer.com/2014/03/26/cloud-ionization-electric-rainmaking-laser-guided-weather-modification/>
- <https://climateviewer.com/2014/02/02/blue-gold-rush-future-water-wars-using-rivers-troposphere/>

Cloud Ionizers – Electric Rainmaking

WMO DOCUMENTS ON WEATHER MODIFICATION
Updated in the meeting of the Expert Team on Weather Modification Research
Abu Dhabi, 22-24 March 2010

WORLD METEOROLOGICAL ORGANIZATION

“Weather Modification technologies that claim to achieve such large scale or dramatic effects do not have a sound scientific basis (e.g. hail canons, ionization methods) and should be treated with suspicion.”



EXECUTIVE SUMMARY OF THE WMO STATEMENT ON WEATHER MODIFICATION

INTRODUCTION

The activities of the WMO in the area of weather modification are aimed at arch projects, and at providing guidance about best practices for operational projects.

It should be realised that the energy involved in weather systems is so large that it is ssible to create cloud systems that rain, alter wind patterns to bring water vapour into a region, or letely eliminate severe weather phenomena. Weather Modification technologies that claim to ve such large scale or dramatic effects do not have a sound scientific basis (e.g. hail canons, ation methods) and should be treated with suspicion.

Purposeful augmentation of precipitation, reduction of hail damage, dispersion of fog and types of cloud and storm modifications by cloud seeding are developing technologies which are triving to achieve a sound scientific foundation.

Operational programmes in fog dispersion, rain and snow enhancement and hail suppression aking place in many countries around the world. The primary aim of these projects is to obtain

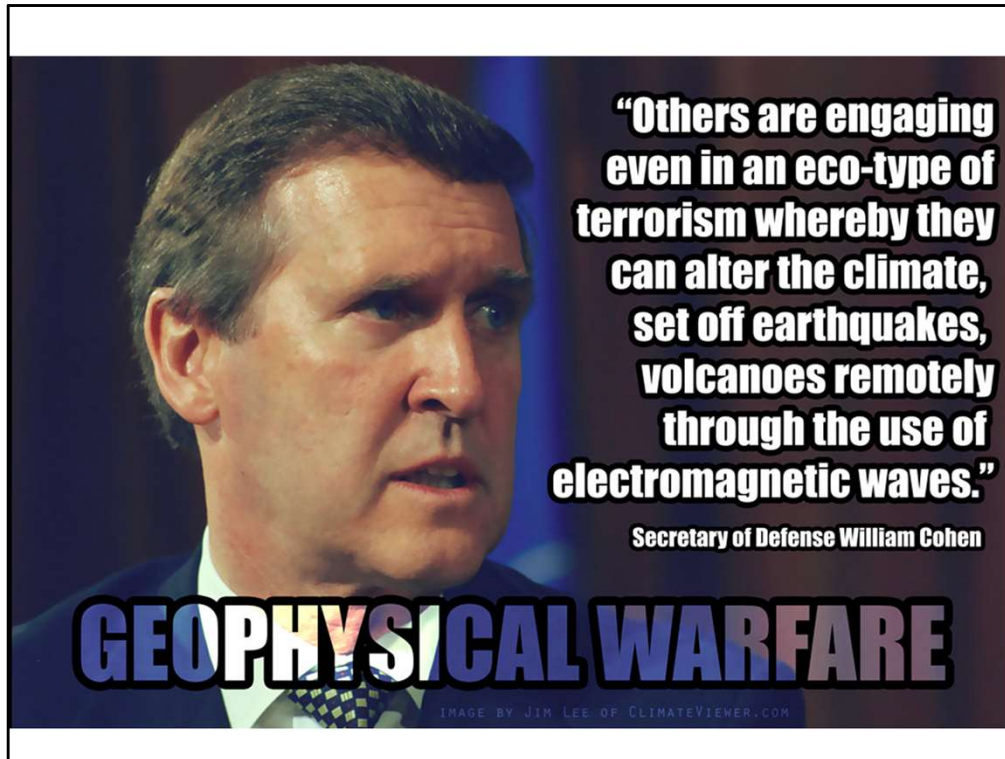


<https://climateviewer.com/2014/03/26/cloud-ionization-electric-rainmaking-laser-guided-weather-modification/>
<https://climateviewer.com/2014/02/02/blue-gold-rush-future-water-wars-using-rivers-troposphere/>

WMO Expert Team on Weather Modification Statement on Ionizers

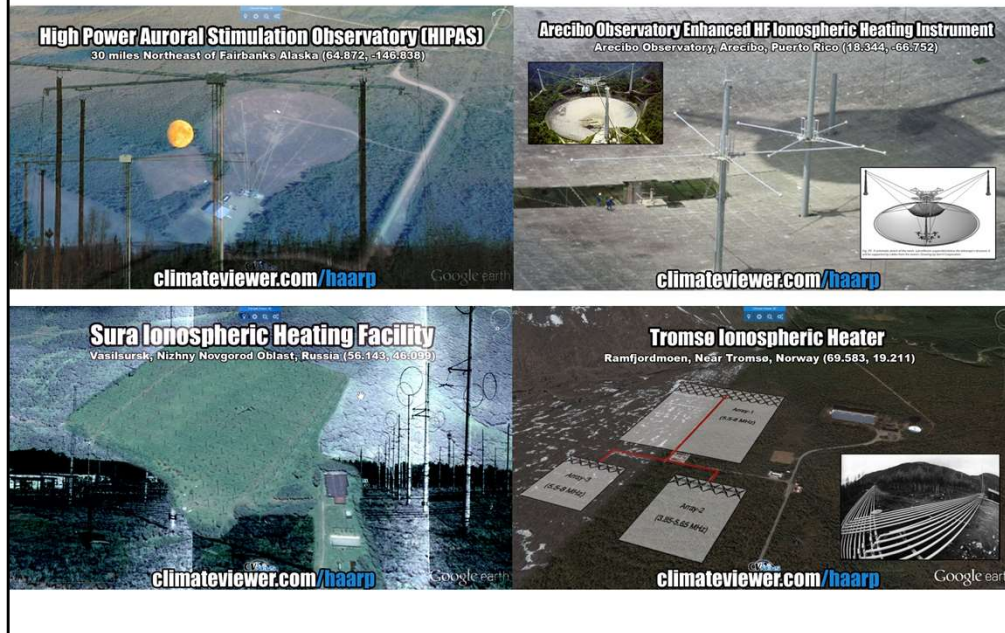
http://www.wmo.int/pages/prog/arep/wwrp/new/documents/WMR_documents.final_27_April_1.FINAL.pdf

http://www.wmo.int/pages/prog/arep/wwrp/new/weathermod_new.html



“Terrorism, Weapons of Mass Destruction, and U.S. Strategy”
Sam Nunn Policy Forum – April 28, 1997 University of Georgia, Athens, Georgia.
<http://www.fas.org/news/usa/1997/04/bmd970429d.htm>

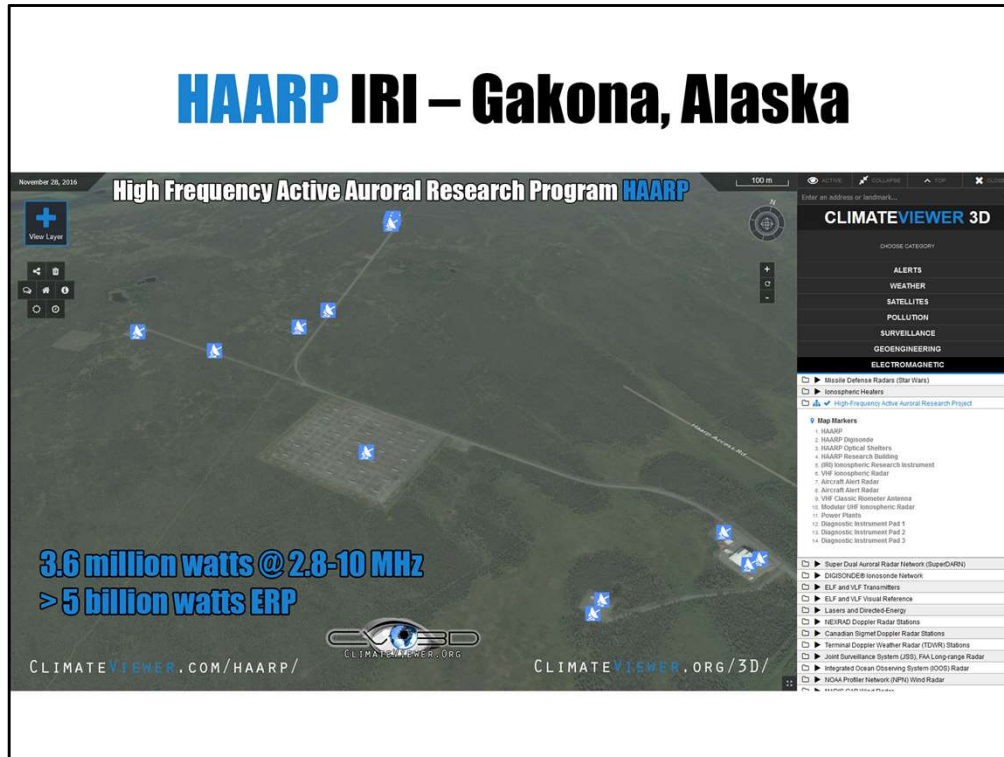
Ionospheric Heaters



<https://climateviewer.com/haarp/>

<https://climateviewer.com/2014/10/18/ionospheric-heaters-how-haarp-really-works/>

HAARP IRI – Gakona, Alaska



<http://climateviewer.org/3D/index.html?layersOn=haarp&baseLayer=Bing%20Aerial&lat=-145.15053&lon=62.39722&zoom=4544.98&date=2016-11-28>

<https://climateviewer.com/haarp/>

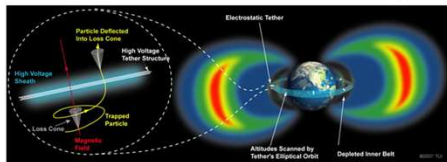
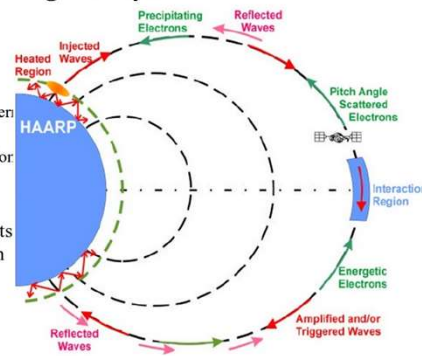
<https://climateviewer.com/2014/10/18/ionospheric-heaters-how-haarp-really-works/>

Radiation Belt Remediation aka Draining the Van Allen Belts

“we don’t think there is any downside to not having them [Van Allen belts]” says Dr. Jacob Bortnik, UCLA. **“That’s the most any of us can really say at the moment.”**

TETHER Panel Recommendation:
Use HAARP facility in Alaska as a “wind tunnel” to determine the feasibility and engineering specifications of a mitigation system.

- Observe amplified and triggered waves
 - At conjugate region (Southern Pacific)
 - Near HAARP upon reflection in the south
- Observe ionospheric effects of precipitated electrons with HAARP diagnostics



<https://climateviewer.com/2015/01/01/ionospheric-heaters-destroying-van-allen-belts/>

[Satellite Threat Due to High Altitude Nuclear Detonation](#) – Eisenhower Institute – Papadopoulos-Presentation 280369

<https://www.scribd.com/doc/134612875/Satellite-Threat-Due-to-High-Altitude-Nuclear-Detonation-Eisenhower-Institute-Papadopoulos-Presentation-280369>

High-Voltage Orbiting Long Tether (HiVOLT):
A System for Remediation of the Van Allen Radiation Belts

It remains uncertain as to whether removing these radiation belts might have unintended consequences.

“At present **we don’t think there is any downside to not having them**, but as with all things geophysical, it is hard to know all the complex interconnections between the various systems and estimate the full effect of removing the radiation belts completely,” Bortnik says.

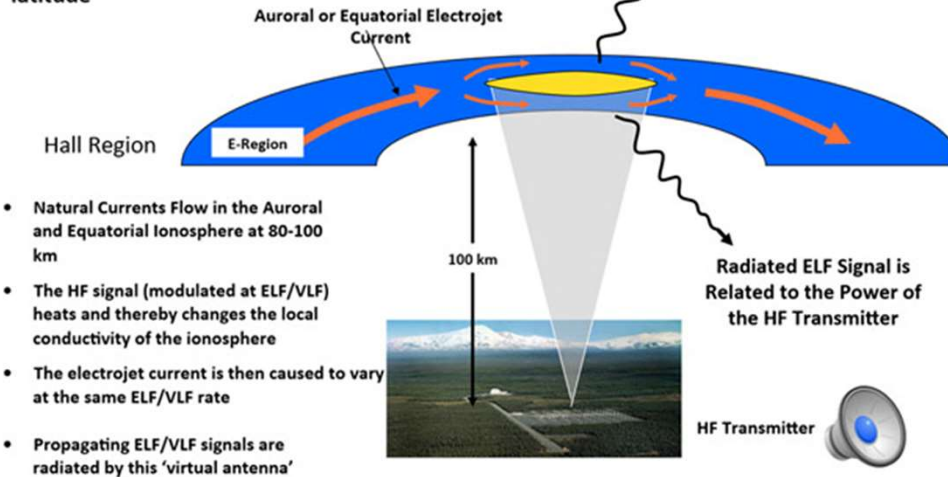
“That’s the most any of us can really say at the moment.”

Can We Hack the Van Allen Belts?.”

<http://spectrum.ieee.org/aerospace/astrophysics/hacking-the-van-allen-belts>

HF Ionospheric Heaters as “VIRTUAL” ULF/ELF/VLF Antennae

Two techniques : 1. Current modulation –Polar Electrojet (PEJ) Antenna – Requires the presence of an electrojet current – not applicable at mid-latitude

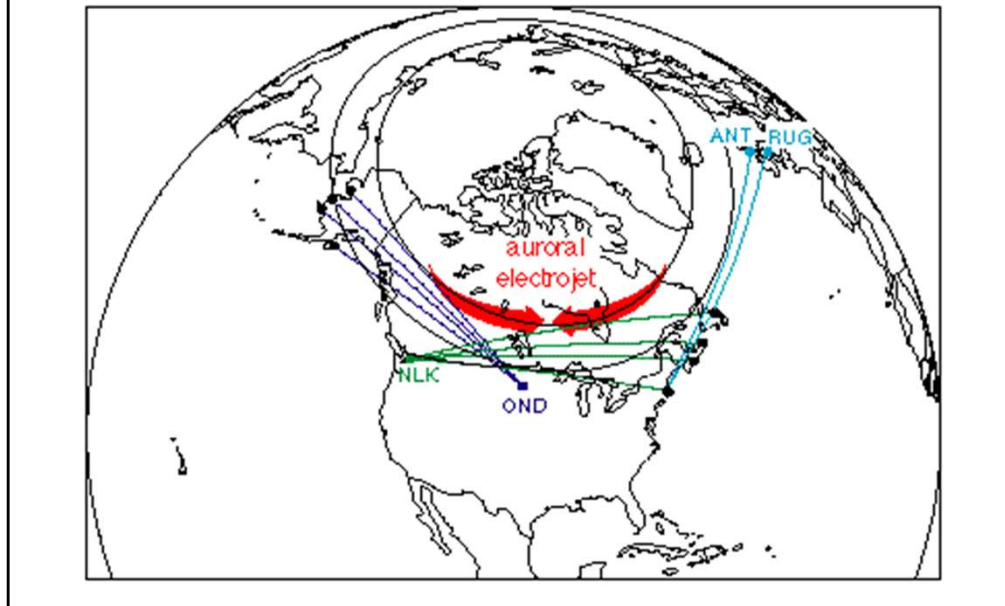


<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Active%20Experiments-2013.pdf>

– Using Active Experiments to Probe Geospace, Dennis Papadopoulos, University of Maryland

<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Virtual%20ULF%20Antennae-2013.pdf> – “Virtual ULF/ELF/VLF Ionospheric Antennae” Resolving Critical Radiation Belt & Geospace Issues, Dennis Papadopoulos, University of Maryland

Polar Electrojet PEJ Heating E Region

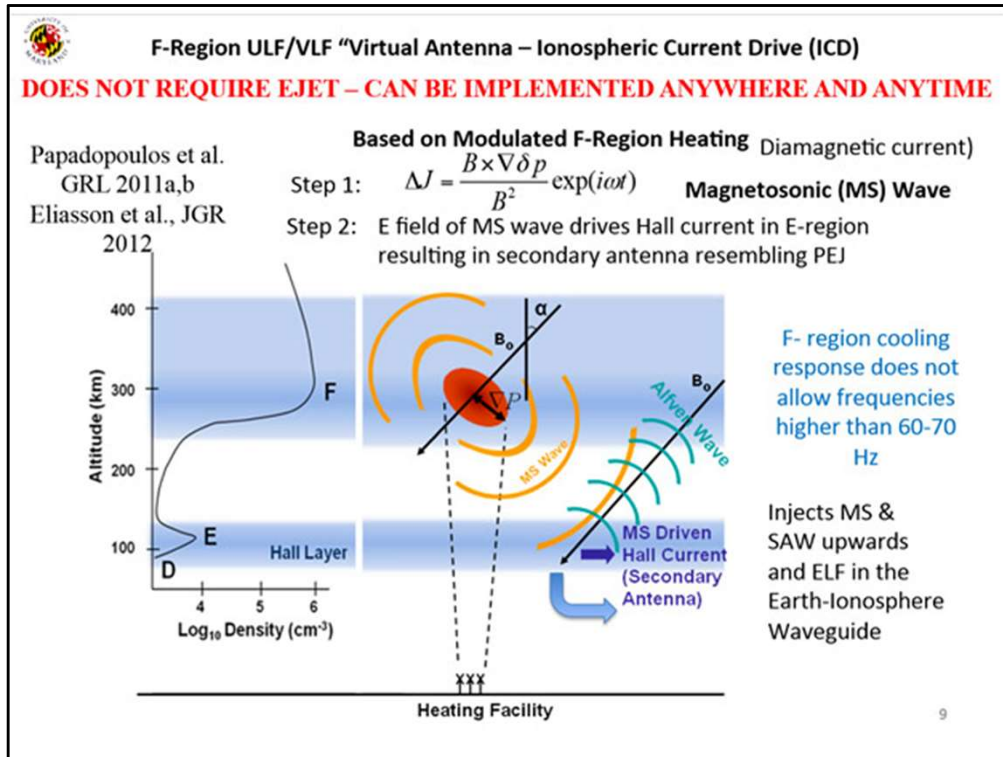


<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Active%20Experiments-2013.pdf>

– Using Active Experiments to Probe Geospace, Dennis Papadopoulos, University of Maryland

<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Virtual%20ULF%20Antenna-2013.pdf>

– “Virtual ULF/ELF/VLF Ionospheric Antennae” Resolving Critical Radiation Belt & Geospace Issues, Dennis Papadopoulos, University of Maryland



<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Active%20Experiments-2013.pdf>

– Using Active Experiments to Probe Geospace, Dennis Papadopoulos, University of Maryland

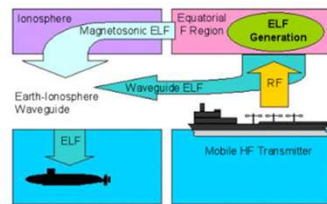
<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Virtual%20ULF%20Antennea-2013.pdf> – “Virtual ULF/ELF/VLF Ionospheric Antennae” Resolving Critical Radiation Belt & Geospace Issues, Dennis Papadopoulos, University of Maryland

Ionospheric Current Drive ICD Heating



SUMMARY

- ELF produced by HAARP with **NO Electrojet – A Major Breakthrough** based on discoveries in recent HAARP campaigns under MURI/ONR and BRIOCHE/DARPA programs
 - Predictable and repeatable ELF generation up to 50 Hz on daily basis
 - $M_{\text{eff}} \approx 4 \times 10^9 \text{ A}\cdot\text{m}^2$
 - Validated technique: plasma currents driven by HF heating in the F/E layers
 - Technology transferable to low latitude regions with robust F & no E'jet
- An efficient Ionospheric ELF source that can be positioned in theater on a mobile platform
 - Data rate \gg FELF system
 - Higher source strength
 - High TRL level for transitioning



<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Active%20Experiments-2013.pdf>

– Using Active Experiments to Probe Geospace, Dennis Papadopoulos, University of Maryland

<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Virtual%20ULF%20Antennea-2013.pdf> – “Virtual ULF/ELF/VLF Ionospheric Antennae” Resolving Critical Radiation Belt & Geospace Issues, Dennis Papadopoulos, University of Maryland



Implications - Barge or Shipboard Option

Combination of low HF power and high HF frequency requirements allow for mobile option

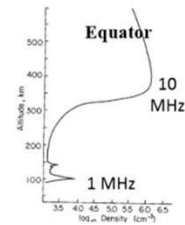
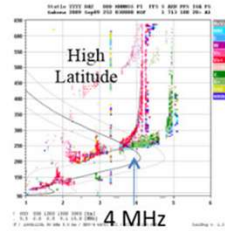


Strawman HF Array



- HF frequency 8-10 MHz
- Linear polarization
- Twenty 25-kW solid state transmitters
- Ship provided power

- Can provide theater and strategic sub communications
- Enhance Blue-Green laser tactical communications by providing info as to transmit and receive locations

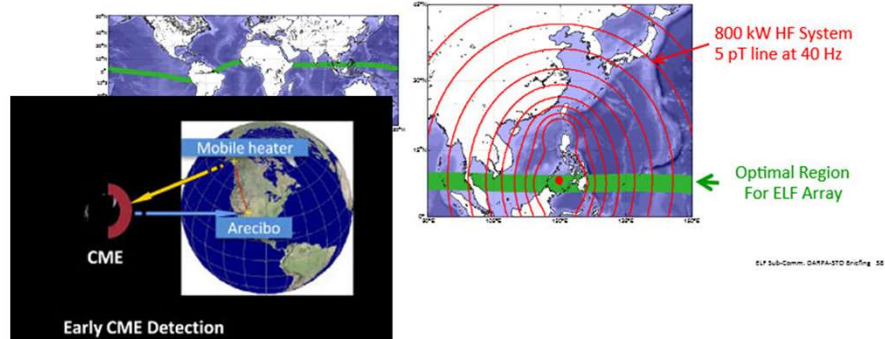
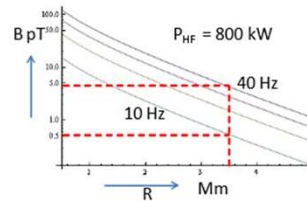


<https://climateviewer.com/2014/10/22/haarp-boat-ionospheric-heaters-go-mobile/>
<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Barge%20Based%20ELF-2010.pdf> – “On the Viability and Requirements of a Barge Based ELF System” Dennis Papadopoulos, University of Maryland, College Park, December 21, 2010



ELF Mobile Array Performance

- Optimal area for Mobile Array along Magnetic Equator (green band, within 2° from dip equator)
- Power requirements depend on location
 - Example: Korea - Yellow Sea
 - 800 KW system can provide data rates in the tens of bit/sec
 - Signal as large as 5 pT at 40 Hz or more at range of 3500 km
 - Typical background noise at 40-80 Hz is 200-500 fT/Hz^{1/2}



<https://climateviewer.com/2014/10/22/haarp-boat-ionospheric-heaters-go-mobile/>
<http://spp.astro.umd.edu/SpaceWebProj/Invited%20Talks/Barge%20Based%20ELF-2010.pdf> – “On the Viability and Requirements of a Barge Based ELF System” Dennis Papadopoulos, University of Maryland, College Park, December 21, 2010
<http://www.ipr.umd.edu/sites/default/files/documents/Papadopoulos%20.pdf> – “Mobile HF Sources Research & Applications” Physics of Ionospheric Modification, Theory & Laboratory Experiments, Dennis Papadopoulos – Gennady Milikh, University of Maryland, College Park, AFOSR MURI KickOff March 12, 2014

Project LUCY in the Sky with Diamonds

“noctilucent clouds formed from the breakdown of methane in a circular zone above the HAARP transmitter”

The Technology

Methane in the air is decomposed in between radio transmitters that each use slightly different radio frequencies.

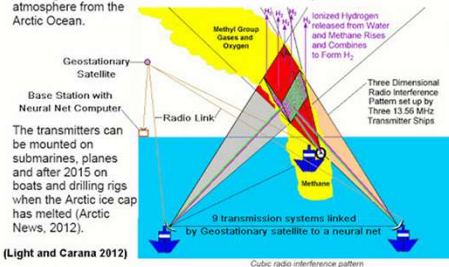


Figure 4. Schematic representation of two beamed parabolic radio transmitters using slightly different frequencies, the radio interference pattern of which is designed to decompose methane in a plume rising into the Arctic atmosphere from unstable surface and submarine methane hydrates



Figure 7. Project Lucy Radio and Laser Atmospheric Methane Cloud Detection, Energisation and Methane Destruction

Project Lucy therefore aims to design, build and test a microwave transmission system targeting low-altitude methane clouds with the aim of breaking the first C-H bond as soon as the methane erupts into the atmosphere from the Arctic Ocean.



<https://climateviewer.com/2014/04/01/haarp-lucy-sky-diamonds/>

ANGELS Proposal

https://docs.google.com/presentation/d/1vOw215pGuiob9q-u0VRrc2Uumfxr8xU3s4Q2k_YNdE/edit#slide=id.p4

Arctic Methane Emergency Group – AMEG

<http://ameg.me/>

AMEG letter to world leaders begging for Geoengineering in 2013

<http://ameg.me/images/ameg-strategic-plan.pdf>

“Following the launch of AMEG’s ‘Strategic Plan’ the above actions will be communicated to all world leaders and relevant parties in the form of an ‘Essential Action Plan’ to match the pending circumstances of the change in the world’s weather patterns.”

UK Government Response to AMEG’s call for Geoengineering

<http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenvaud/858/85804.htm>

AMEG Responds to UK Governments shunning: <http://ameg.me/index.php/2-ameg/48-government-response-to-eac-based-on-non-existing-observations-says-ameg>

GEOENGINEERING

AKA

CLIMATE ENGINEERING

AKA

CLIMATE INTERVENTION

<https://climateviewer.com/geoengineering/>

Terminology

Solar Radiation Management (SRM)

Stratospheric Aerosol Injection (SAI)

Marine Cloud Brightening (MCB)

Thermal Radiation Management (TRM)

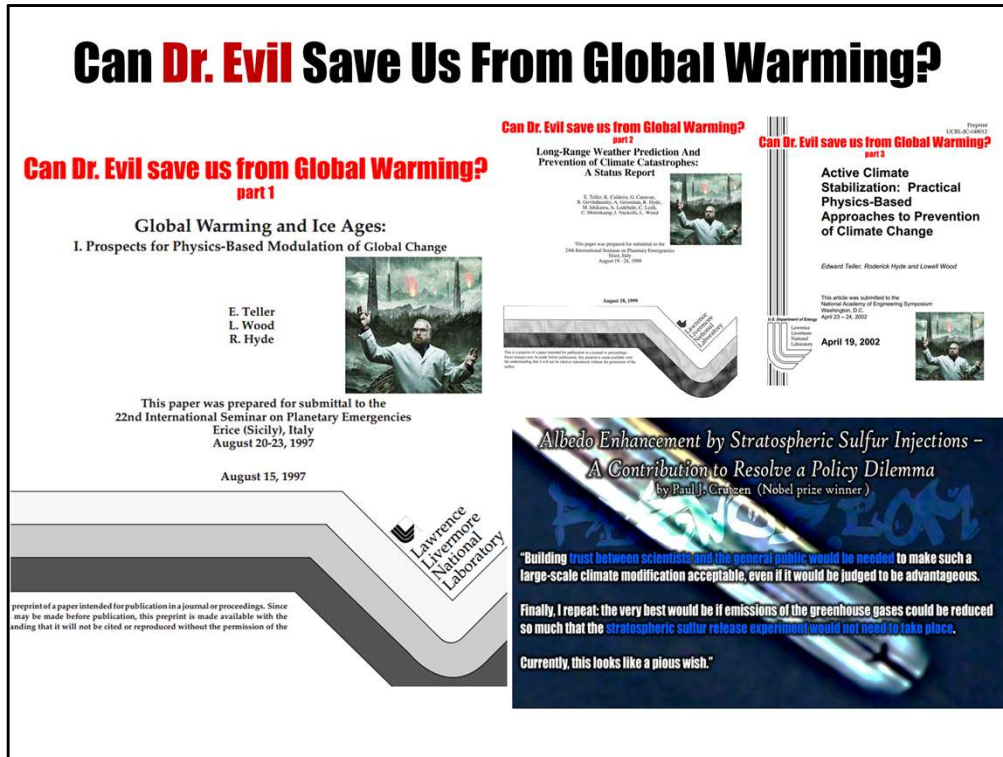
Short Wave Climate Engineering (SWCE)



Terminology – Google Scholar Results

- geoengineering [[25,200 results](#)]
- weather modification [[20,900 results](#)]
- weather control [[4,130 results](#)]
- climate modification [[5,310 results](#)]
- climate engineering [[2,460 results](#)]
- climate intervention [[119 results](#)]
- ecological alteration [[366 results](#)]
- albedo modification [[531 results](#)]
- albedo enhancement [[1,580 results](#)]
- solar radiation management [[1,470 results](#)]
- stratospheric aerosol injection (SAI) [[173 results](#)]
- stratospheric aerosol geoengineering (SAG) [[84 results](#)]

<https://climateviewer.com/2015/03/06/re-branding-geoengineering-climate-intervention-and-gatekeeping/>



August, 1997 - Global Warming and Ice Ages – Prospects for Physics-Based Modulation of Global Change

Dr. Evil's Geoengineering Plan (part 1) by Edward Teller, Lowell Wood, Roderick Hyde. Lawrence Livermore National Laboratory.

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http://dge.stanford.edu/labs/caldeiralab/Caldeira%20downloads/Teller_etal_LLNL231636_1997.pdf

August 19-24, 1999 - Long-Range Weather Prediction And Prevention of Climate Catastrophes – A Status Report

Dr. Evil's Geoengineering Plan (part 2) by Edward Teller, Lowell Wood, Roderick Hyde, and Ken Caldeira. Lawrence Livermore National Laboratory.

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http://dge.stanford.edu/labs/caldeiralab/Caldeira%20downloads/Teller_etal_LLNL236324_1999.pdf

April 19, 2002 - Active Climate Stabilization – Practical Physics-Based Approaches to Prevention of Climate Change

Dr. Evil's Geoengineering Plan (part 3) by Edward Teller, Lowell Wood, Roderick Hyde. Lawrence Livermore National Laboratory.

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<http://web.archive.org/web/20070611194418/http://www.llnl.gov/global-warm/148012.pdf>
<http://r3zn8d.files.wordpress.com/2013/03/active-climate-stabilization-practical-physics-based-approaches-to-prevention-of-climate-change.pdf>

August, 2006 - Stratospheric sulfur injection to reflect sunlight

Albedo Enhancement by Stratospheric Sulfur Injections – A Contribution to Resolve a Policy Dilemma by Nobel prize winner Paul J. Crutzen

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<http://link.springer.com/article/10.1007%2Fs10584-006-9101-y?LI=true>

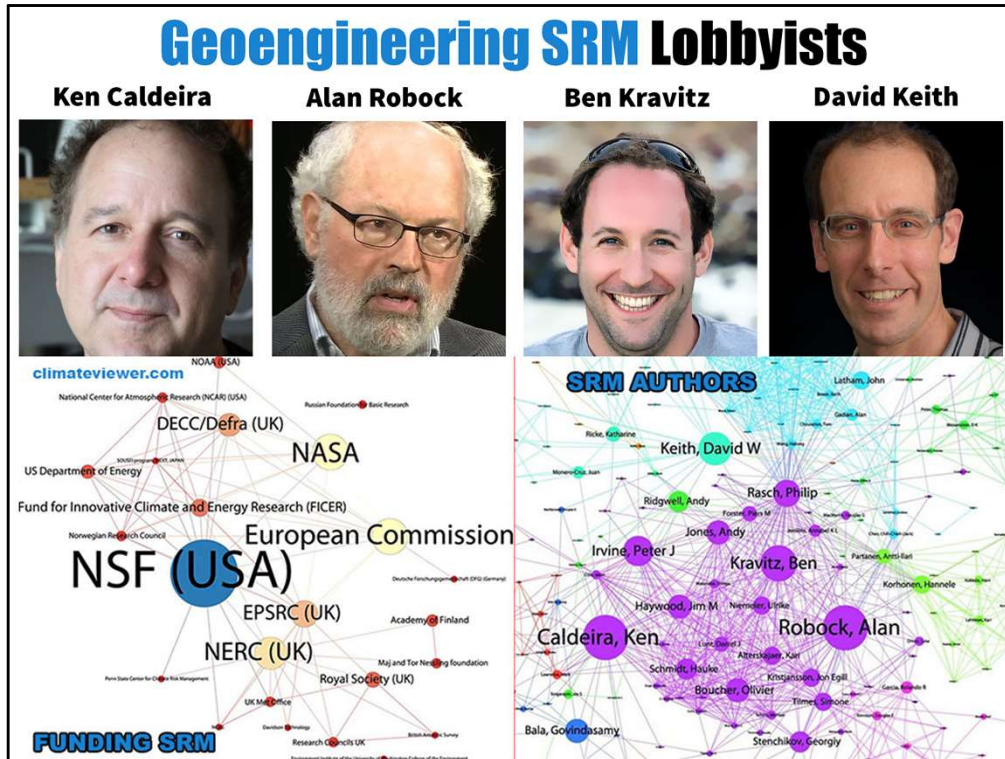


<https://climateviewer.wordpress.com/2013/10/09/bill-gates-funds-geoengineering-studies/>

*Grants for (geoengineering programs) research are provided to the University of Calgary from gifts made by **Mr. Bill Gates** from his personal funds. The activities of the **Fund for Innovative Climate and Energy Research** fall outside the scope of activities of the Bill & Melinda Gates Foundation. FICER is not a Foundation project and has no relationship with it.*

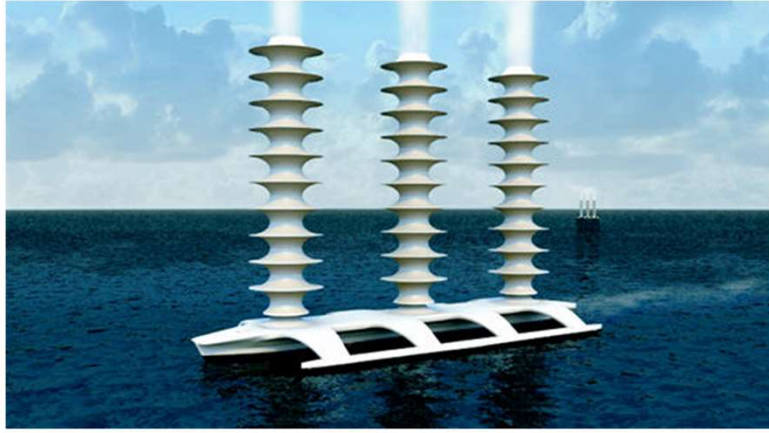
The fund has supported research in a wide range of areas. Some examples include:

- 1. understanding carbon dioxide emissions associated with international trade in goods and services;*
- 2. developing technologies to capture carbon dioxide out of the air; and*
- 3. climate modeling to understand possible environmental consequences of solar radiation management*



Oldham P, Szerszynski B, Stilgoe J, Brown C, Eacott B, Yuille A. 2014. **Mapping the landscape of climate engineering**. *Phil. Trans. R. Soc. A* 372, 20140065 ([doi:10.1098/rsta.2014.0065](https://doi.org/10.1098/rsta.2014.0065)) [[PMC free article](#)][[PubMed](#)]
<http://dx.doi.org/10.1098/rsta.2014.0065>
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4240957/>
<http://www.ncbi.nlm.nih.gov/pubmed/25404683>

Geoengineering SRM Projects



The Silver Lining Project - Marine Cloud Brightening

<https://climateviewer.com/2013/10/09/the-silver-lining-project-cloud-making-boats-ocean-pumps-to-halt-hurricanes/>

The Silver Lining Project is a not-for-profit international scientific research collaboration to study the effects of particles (aerosols) on clouds, and the influence of these cloud effects on climate systems. [1]

Research Objectives: Fill important gaps in the understanding of cloud dynamics and systems to improve climate models - Advance understanding of the climate effects of pollution in clouds - Research basic processes associated with adding natural aerosols to clouds to impact climate (e.g. Marine Cloud Brightening) - Understand the principles behind technologies for adding natural aerosols to cloud systems [2] -

This research is currently undertaken by distinguished scientists and engineers

at: Manchester University, Leeds University, NCAR, Pacific Northwest National Labs, Purdue University, University of Washington and the University of Edinburgh [3].

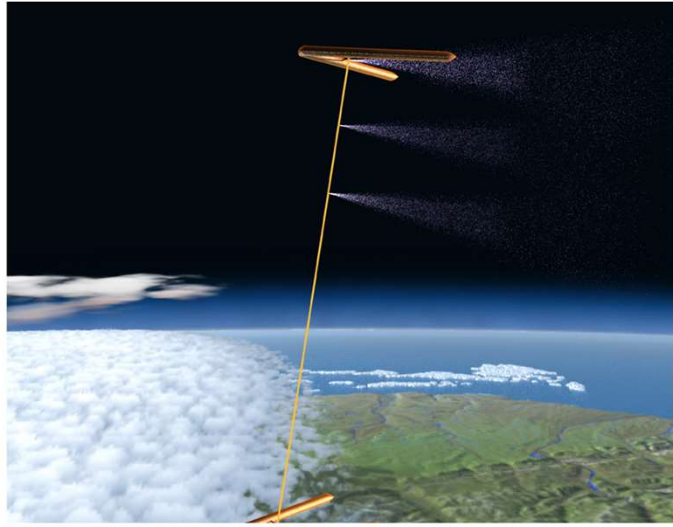
***Silver Lining Project - One Market Street, Suite 3500. San Francisco, California 94105
phone: +1 (415) 681-8000 fax: +1 (415) 651-8932***

Email: info@silverliningproj.org [4] [1] silverliningproj.org/index.html

[2] silverliningproj.org/research.html [3] silverliningproj.org/collaborators.html

[4] silverliningproj.org/contact.html

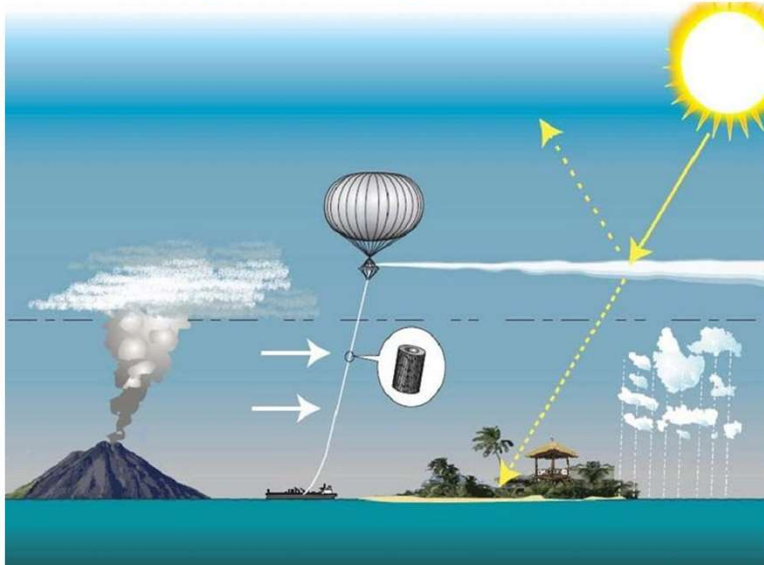
Geoengineering SRM Projects



The Stratoshield "Hose to the Sky"

<https://climateviewer.com/2013/10/10/the-stratoshield-hose-to-the-sky-could-reverse-global-warming/>

Geoengineering SRM Projects



Stratospheric Particle Injection for Climate Engineering SPICE

<https://climateviewer.com/2013/10/06/geoengineering-programs-weather-modification-experiments/>

http://e360.yale.edu/feature/a_hard_look_at_the_perils_and_potential_of_geoengineering/2260/

The Asilomar International Conference on Climate Intervention Technologies

March 22-26, 2010
Asilomar Conference Center
Pacific Grove, California

In other words, if the public comes to see geoengineering as, as one attendee put it, "a crazy idea cooked up by rich Anglo Saxons to dominate the climate," then they will all be rightfully tarred and feathered.



As for the U.S. Department of Defense — forget about it. To this group, such involvement prompts nightmares of a new military-industrial-geoengineering complex.

CLIMATE RESPONSE FUND



<https://climateviewer.com/2014/04/01/hard-look-perils-potential-geoengineering/>

Geoengineering Will Kill People

“It is likely that any **SRM geoengineering intervention will create winners and losers** and some nations may always be against any intervention whatsoever.”

“In any given year there are floods, droughts, heatwaves, etc. but during this field trial a fraction of these events would be attributed (rightly or wrongly, partially or fully) to the intervention. Two questions arise:”

“Could it be determined if any changes in the climate (outside of the target area) had occurred as a result of the intervention during a 10 year trial?”

“How would aggrieved nations or peoples seek reparations for perceived negative impacts (scientifically proven or otherwise)?”

- [Pete Irvine, PhD student. School of Geographical Sciences, University of Bristol.](#)

<https://groups.google.com/d/msg/geoengineering/ipdLpbnXHeU/tAXDtadrNR0J>

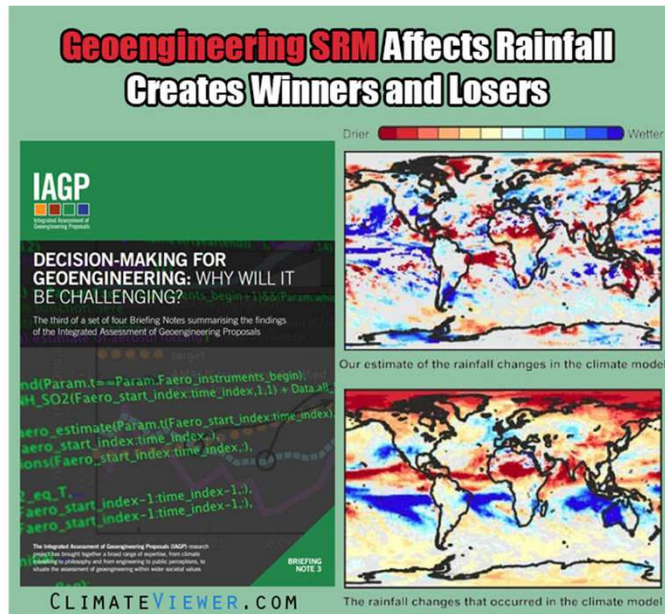
Geoengineering Will Kill People

- the solar geoengineering led to serious side-effects, e.g., reduced rainfall over the semi-arid area south of the Sahara desert

- When when solar geoengineering stopped, the climate rapidly rebounded

- we cannot tell how much cooling was caused by solar geoengineering and how much resulted from natural climate variability, e.g. volcanic eruptions”

- **Integrated Assessment of Geoengineering Proposals**



DECISION-MAKING FOR GEOENGINEERING: WHY WILL IT BE CHALLENGING?

The third of a set of four Briefing Notes summarizing the findings of the Integrated Assessment of Geoengineering Proposals

http://www.iagp.ac.uk/sites/default/files/IAGP_Briefing_Note_3.pdf

“The ability to accurately detect and attribute changes in the climate should be a prerequisite for implementing geoengineering”

To facilitate more accurate detection and attribution of changes in the Earth’s climate, there needs to be significant improvements to the coverage and quality of observations along with the co-ordinated development of computer simulations.

To better appreciate the real-world complexities associated with geoengineering, decision-makers should have access to interactive simulators similar to the one used in the IAGP Arctic sea ice study

Geoengineering in the Arctic: Defining the Governance Dilemma

<https://pdfs.semanticscholar.org/54e5/69b046742da3edd652976c1f4175319c1ff2.pdf>

Deployment of SRM techniques to slow melting of the Arctic ice sheet carries significant risks and uncertainties, and thus raises multiple difficulties for its governance. One suggested technique, shooting sulfate aerosols into the stratosphere, could lead to ozone depletion (Tilmes et al. 2008). This kind of depletion “could disrupt the Asian and African

summer monsoons, reducing precipitation to the food supply for millions of people” (Robock et al. 2008). Thus, the consequences of injecting sulfate aerosols could impact 700 million inhabitants in the northern hemisphere, not merely the 4 million inhabitants of the Arctic region (Maté 2002). Scientists have also suggested injecting soot into the stratosphere, since it has comparable scattering properties to sulfate aerosols (Crutzen 2006). This, however, would result in blackening the Arctic snow and possibly, accelerated melting of the ice sheet. These technologies could also have other implications, positive or negative, that have still not been fully assessed. In order to identify these implications, these technologies will need to be deployed on a large scale.

Geoengineering Ban

that no climate-related geo-engineering activities that may affect biodiversity take place**, until there is an adequate scientific basis on which to justify such activities and appropriate consideration of the associated risks for the environment and biodiversity and associated social, economic and cultural impacts, with the exception of small scale scientific research studies that would be conducted in a controlled setting
– Convention for Biological Diversity, Climate-related Geoengineering and Biodiversity, 2012

“The U.S. is not a party to the 1992 accord and thus was NOT officially involved in the geoengineering decision.”

<https://www.cbd.int/climate/geoengineering/>

*** footnote to decision X/33 para 8 (w): Without prejudice to future deliberations on the definition of geo-engineering activities, understanding that any technologies that deliberately reduce solar insolation or increase carbon sequestration from the atmosphere on a large scale that may affect biodiversity (excluding carbon capture and storage from fossil fuels when it captures carbon dioxide before it is released into the atmosphere) should be considered as forms of geo-engineering which are relevant to the Convention on Biological Diversity until a more precise definition can be developed. It is noted that solar insolation is defined as a measure of solar radiation energy received on a given surface area in a given hour and that carbon sequestration is defined as the process of increasing the carbon content of a reservoir/pool other than the atmosphere*

October 2016

<https://www.cbd.int/doc/publications/cbd-ts-84-en.pdf>

Geoengineering and COP21

“Within the **Paris agreement** there’s an implicit assumption that there will need to be greenhouse gases removed,” said Phil Williamson, a scientist at the U.K.’s University of East Anglia, who worked on the report.

“Climate geoengineering is what countries have agreed to do, although they haven’t really realized that they’ve agreed to do it.”



“We’re not going to launch a big effort before Paris;”

<https://climateviewer.com/2016/10/18/hillary-clinton-supports-geoengineering-err-climate-intervention/>

"Our backs are against the wall and we must now start the process of preparing for geo-engineering, the letter said. "We must do this in the knowledge that its chances of success are small and the risks of implementation are great."

The Paris Agreement commits countries to a system of voluntary national climate action plans, which will be reviewed every five years in a bid to keep average global temperature increases well below 2C and ideally below 1.5C. However, according to official estimates current national plans will result in temperature increases of almost 3C this century and the letter dismisses the idea far more ambitious plans and targets will be agreed in five years as "naïve".

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<http://www.bbc.com/news/science-environment-35109198>

<http://www.businessgreen.com/bg/news/2441233/academics-call-for-geoengineering-preparation-in-wake-of-paris-agreement-s-deadly-flaws>

Geoengineering Is Already Happening

“The emissions and the climate change that we’re causing with that is **already a massive experiment on our world** that we don’t really know the outcome of. So I don’t think we should **start another set of experiments and go into geoengineering**. I think we should get our act together and reduce our emissions.”

[U.N. Assistant Secretary-General Janos Pasztor](#)

<http://www.weather.com/news/climate/news/geoengineering-paris-climate-conference-talks>

Geoengineering Is Already Happening “ARTIFICIAL CLOUDS” – Ship Tracks



**MODIS Terra Corrected Reflectance
3-6-7 band - January 30, 2013**

http://climateviewer.org/3D/index.html?layersOn=MODIS_Terra_CorrectedReflectance_Bands367&baseLayer=Dark%20Matter&lat=-130.45279&lon=37.51724&zoom=1099418.71&date=2013-01-30

Geoengineering Is Already Happening "ARTIFICIAL CLOUDS" – Ship Tracks

Daily Mail .com

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How 16 ships create as much pollution as all the cars in the world

By: FRED PEARCE
UPDATED: 17:13 EST, 21 November 2009



138
View comments

Last week it was revealed that 54 oil tankers are anchored off the coast of Britain, refusing to unload their fuel until prices have risen.

But that is not the only scandal in the shipping world. Today award-winning science writer Fred Pearce – environmental consultant to New Scientist and author of Confessions Of An Eco Sinner – reveals that the super-ships that keep the West in everything from Christmas gifts to computers pump out killer chemicals linked to thousands of deaths because of the filthy fuel they use.

We've all noticed it. The filthy black smoke kicked out by funnels on cross-Channel ferries, cruise liners, container ships, oil tankers and even tugboats.



© Gareth Lavery/Writer Pictures
Eco expert: Fred Pearce is an environmental consultant to New Scientist magazine

World's 15 Biggest Ships Create More Pollution Than All The Cars In The World

By: JENNIFER HARRIS | June 5th, 2012



Big polluters: one massive container ship equals 50 million cars

Paul Evans | April 23rd, 2009



15 of the world's biggest ships may now emit as much pollution as all the world's 700m cars

BUNKER FUEL - "The real issue lies with the heavy fuel oil the ships run on and the almost complete lack of regulations applied to the giant exhaust stacks of these container ships."

<http://www.dailymail.co.uk/sciencetech/article-1229857/How-16-ships-create-pollution-cars-world.html>

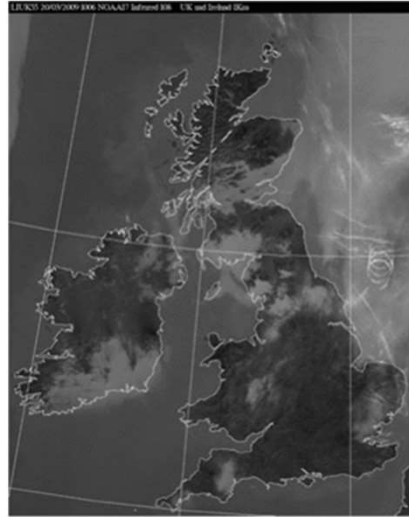
<http://newatlas.com/shipping-pollution/11526/>

<http://www.industrytap.com/worlds-15-biggest-ships-create-more-pollution-than-all-the-cars-in-the-world>

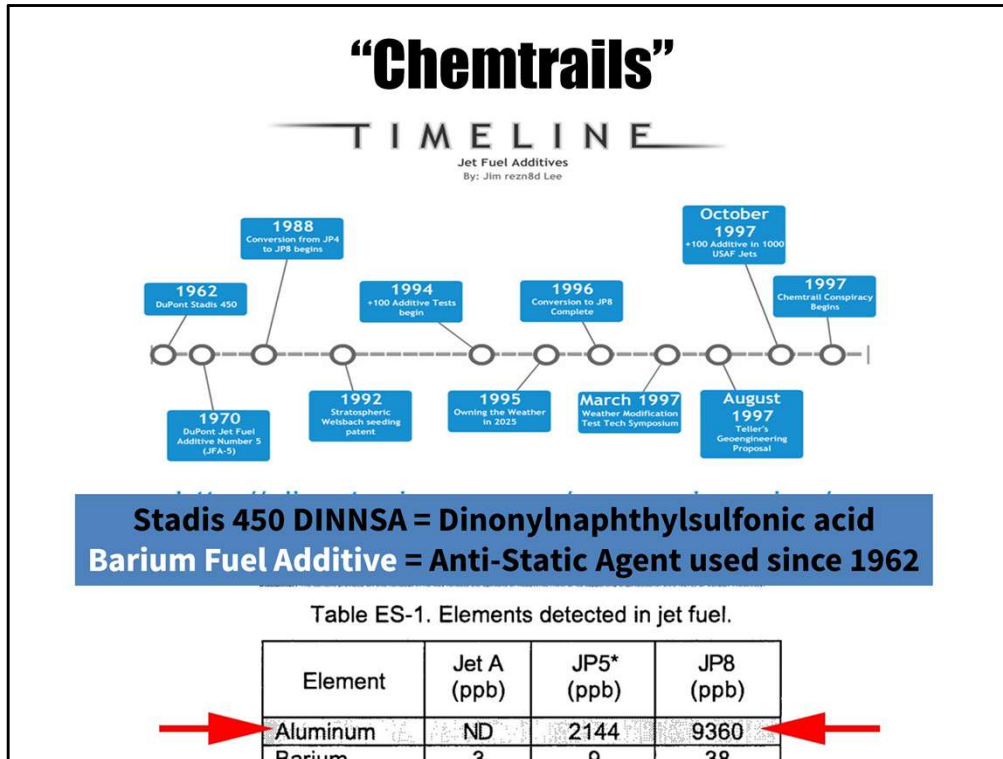
Geoengineering Is Already Happening **“ARTIFICIAL CLOUDS” – Contrail Cirrus**

**A case study of the
radiative forcing of
persistent contrails
evolving into contrail-
induced cirrus**

March 20, 2009



The pictures show satellite thermal images of the evolving contrail. This was from a case study published by Jim Haywood and colleagues in JGR [doi:10.1029/2009JD012650](https://doi.org/10.1029/2009JD012650).
<http://onlinelibrary.wiley.com/doi/10.1029/2009JD012650/abstract>



<https://climateviewer.com/2014/11/05/contrails-geoengineering-single-fuel-concept/>

<https://climateviewer.com/chemtrails/>

<https://climateviewer.com/2016/09/16/the-chemtrail-conspiracy-bombshell-secret-agenda-explained/>

[Trace Element and Polycyclic Aromatic Hydrocarbon Analyses of Jet Engine Fuels: Jet A, JP5, and JP8](http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA396143): <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA396143>

[Spray Visualization of Alternative Aviation Turbine Fuel embedded with Metallic Nanoparticles](http://www.psfvip10.unina.it/Ebook/web/papers/110_PSFVIP10.pdf)

http://www.psfvip10.unina.it/Ebook/web/papers/110_PSFVIP10.pdf

[Energetic Nanoparticles as Fuel Additives for Enhanced Performance in Propulsion Systems](http://etd.lsu.edu/docs/available/etd-07132012-105303/unrestricted/SKarmakar_Disstn_final3.pdf)

http://etd.lsu.edu/docs/available/etd-07132012-105303/unrestricted/SKarmakar_Disstn_final3.pdf

[Reduction of emissions and fuel consumption in a compression ignition engine using nanoparticles](http://www.bioline.org.br/pdf?st15211)

[Nanoparticles increase biofuel performance](http://www.bioline.org.br/pdf?st15211)

<http://www.bioline.org.br/pdf?st15211>

Why add nanoparticles? The idea, says lead author R. B. Anand, an associate professor of mechanical engineering at the National Institute of Technology in Tiruchirappalli, India, is that because of their high surface-to-volume ratio, the nanoparticles—which, in the study, had an average diameter of 51 billionths of a meter—have more reactive surfaces, allowing them to act as more efficient chemical catalysts, thus increasing fuel combustion. The presence of the particles also increases fuel–air mixing in the fuel, which leads to more complete burning.

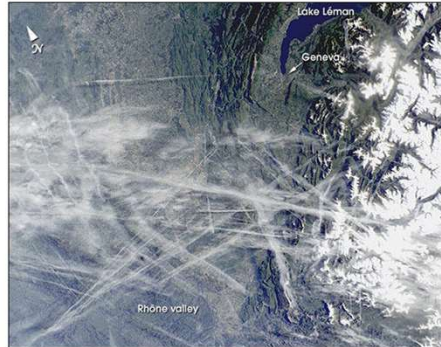
*In the study, Anand and co-author J. Sathik Basha first used a mechanical agitator to create an emulsion consisting of **jatropha biodiesel (a fuel derived from the crushed seeds of the jatropha plant), water, and a surfactant, then blended in different proportions of alumina nanoparticles.** In addition to outperforming regular biofuel, the nanoparticle-spiked fuels produced significantly lower quantities of nitrogen oxide and carbon monoxide gases, and created less smoke.*

*The researchers are now testing other types of nanoparticles, including hollow carbon nanotubes, and investigating the effects of nano-additives to engine lubrication and cooling systems. One obstacle to the application of this kind of nanotechnology is the high cost of nanoparticle production, says Anand—who also cautions that **nanoparticles “should be used judiciously,” because they tend to “entrain into human bodies.”***

Read more at: <http://phys.org/news/2011-04-nanoparticles-biofuel.html>

Terminology – Credibility is Crucial

- Chemtrails
 - Persistent Contrails
 - Spreading Contrails
 - Contrail Cirrus
 - Contrail Induced Cloudiness
 - Aviation Induced Cloudiness
 - Aviation Induced Cirrus
 - Induced Cirrus Cloudiness
 - Man-made clouds
 - **Artificial Clouds**
- **Sky Brightening**
 - **Ice Haze**



All same thing...

Jet Aircraft “Accidental Geoengineering”

"I'm talking about a sub-visual **contrail-generated haze of ice, which we do not classify as a cloud but gives blue sky more of a whitish tint."**

Chuck Long, a [CIRES](#) researcher at NOAA/ESRL's [Global Monitoring Division](#)

VIDEO: <https://www.youtube.com/watch?v=jHJgV6JQVd0>

<https://www.linkedin.com/in/chuck-long-97573b65>
<http://climateviewer.com/chemtrails/>

The History of Artificial Clouds: How to Geoengineer a Planet with Jet Fuel
<https://climateviewer.com/2015/08/08/the-history-of-artificial-clouds-how-to-geoengineer-a-planet-with-jet-fuel/>

Accidental Geoengineering? Airline traffic may help create an icy haze that's brightening U.S. skies. December 15, 2015
<http://www.esrl.noaa.gov/news/2015/121515.html>

Airplane Contrails May Be Creating Accidental Geoengineering
<http://www.smithsonianmag.com/science-nature/airplane-contrails-may-be-creating-accidental-geoengineering-180957561/?no-ist>

Jet traffic linked to ice haze
<http://www.bbc.com/news/science-environment-35109198>

Ken Caldeira and Mick West argue over what geoengineering would look like:
https://groups.google.com/d/msg/geoengineering/3tkTYsugQTW/im_1nFPyS0wJ

Sulfuric Acid from Aviation and Ship Tracks may be higher today than Geoengineering SRM would require in 2020

“25,000 metric tons of sulfuric acid to cut global warming in half after one year.” – David Keith

“1990 global aviation’s annual contribution to the atmospheric sulfur budget by aircraft of 2.E7 kg H₂SO₄ (20,000 metric tons) .
...by 2010 Aviation emissions could had [sic] been up 110%”

“So perhaps those in the GE community who are genuinely opposed to geoengineering should revise their premises and call for research into GE with the purpose of ending this ‘unintended’, but failed and still ongoing experiment.” – Oscar Escobar

<http://geoengineeringclimateissues.blogspot.com/2013/11/h2so4-sulfuric-acid-from-aviation-may.html>

<https://climateviewer.com/2014/01/31/sulfuric-acid-aviation-ship-tracks-may-higher-today-geoengineering-srm-require-2020/>

Activists Take On Artificial Clouds At US EPA Hearing on Jet Pollution – September 2015



- July 25, 2016 – [BREAKING: EPA To Limit Greenhouse Gases From Airplanes](#)
July 31, 2016 – [White House releases “Federal Alternative Jet Fuel Research and Development Strategy”](#)
September 3, 2016 – [China, U.S. and Europe pledge support for global aviation emissions pact](#)
September 12, 2016 – [Greens move to dismiss EPA lawsuit over airplane emissions](#)

https://www.youtube.com/watch?v=yY1_NvWKNi8

<https://climateviewer.com/2014/12/30/hate-chemtrails-act-now-earthjustice-sues-epa/>

<https://climateviewer.com/2015/07/26/worlds-first-epa-public-hearing-on-flight-pollution-speak-now/>

<https://climateviewer.com/2015/08/09/my-speech-to-the-epa-about-flight-pollution/>

<https://climateviewer.com/chemtrails/>

I was the only person who called the EPA demanding a hearing and Senior Policy Analyst Lucie Audette called me to try and talk me out of coming:

<https://www.youtube.com/watch?v=zxFhSk620dw>

<http://web.archive.org/web/20150906001353/http://www.epa.gov/otaq/documents/aviation/us-ghg-endangerment-ip-9-3-14.pdf>

*The Environmental Protection Agency took a step towards adding aircraft emissions to the list of regulated pollution sources. In [a statement](#) the EPA said it will study the issue of greenhouse gas emissions from aircraft, the first step in the regulatory process, and release its findings by next April. **If the agency finds airline emissions to be a risk to public health or the environment, it will begin the process of crafting rules.** The rules would make airplanes subject to carbon emissions guidelines in a process similar to the one currently underway for vehicles and power plants.*

<https://thinkprogress.org/breaking-epa-to-limit-greenhouse-gases-from-airplanes-32e27fccf147>

<http://www.biofuelsdigest.com/bdigest/2016/07/31/white-house-releases-federal-alternative-jet-fuel-research-and-development-strategy/>

<http://www.reuters.com/article/us-eu-climate-aviation-idUSKCN1190M2>

<http://thehill.com/policy/energy-environment/295401-greens-move-to-dismiss-epa-lawsuit-over-airplane-emissions>

Artificial Cloud Experimentation



ICAO Colloquium on Aviation and Climate Change

Message

- Contrail cirrus contributes a large fraction to the aviation induced climate impact (comparable to 50 years of aviation CO₂)
- Satellite data analyses suggest observable impact of aviation on cirrus cover and radiation fluxes
- The climate impact of aviation induced contrail cirrus depends on aircraft properties (e.g. soot emissions) and routing (avoid cirrus forming regions)
- Both aspects offer the potential for aviation to reduce the climate impact of aviation (less soot emissions, **less warming and more cooling** contrails; predictable for operational planning)

Stratospheric sulfate injections with commercial aircraft

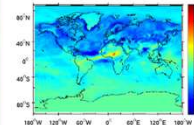


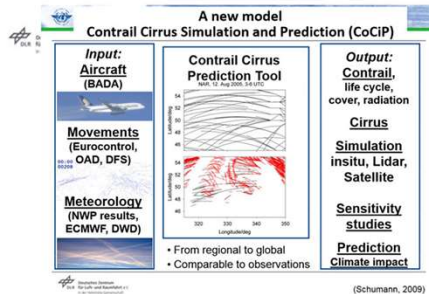
Figure 2. Global mean of all-sky aerosol forcing at the surface when intercontinental flight routes are in the lower stratosphere and the sulfur content of the fuel is 50 times the current level. [3]

- Commercial aircraft could be used to deliver sulfate into stratosphere by increasing fuel sulfur content and the flight altitude of inter-continental flights
- The sulfur content of the fuel should be increased to about 50 times the current level to have a significant cooling effect
- The cooling effect would be confined to the Northern Hemisphere

Department of Geosciences
University of Oslo

Cirrus cloud seeding

- Suggested seeding material:
 - Bismuth tri-iodide, BiI₃
 - Cheap/ish and non-toxic.
- Seeding via commercial airliners?
- Advantage: seeding aerosol residence time is relatively short in the troposphere.
- Drawback: does not address ocean acidification issue.



<https://climateviewer.com/2015/08/08/the-history-of-artificial-clouds-how-to-geoengineer-a-planet-with-jet-fuel/>

http://web.archive.org/web/20150314160918/http://www.apropos.fi/Tiedostot/Tiedostot/FICCA/FICCA%2016.04.2013/Posters/FICCA_poster_Partanen_COOL.pdf

<http://web.archive.org/web/20150314161010/http://www.aka.fi/en-GB/A/Programmes-and-cooperation/Academy-programmes/Etusivun-elementit/Researchers-look-into-geoengineering-possibilities/>

<http://www.atmos-chem-phys.net/16/10521/2016/acp-16-10521-2016.pdf>

Cirrus Cloud Seeding

<https://www.youtube.com/watch?v=ND8hk5xp2Bg>

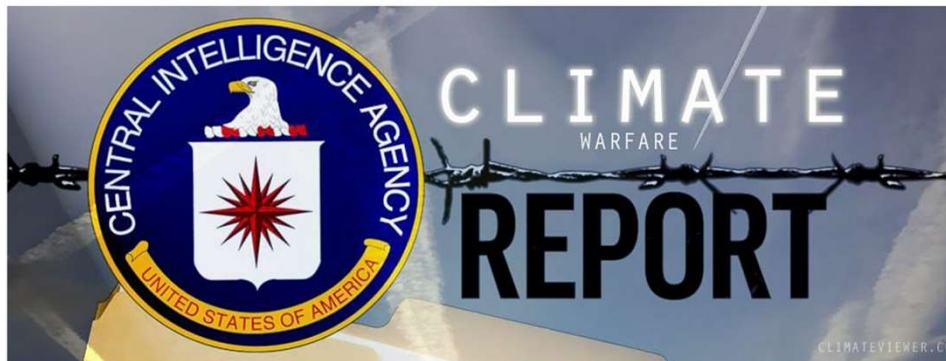
<https://ams.confex.com/ams/95Annual/webprogram/Paper268699.html>

http://folk.uib.no/ngfhd/EarthClim/Calendar/Oslo-2012/Muri_EarthClim_2012.pdf

<http://www.ncbi.nlm.nih.gov/pubmed/25404685>

<http://www.spp-climate-engineering.de/symposium-blog-single/items/day-1-could-we.html>

Geoengineering Is Already Happening **Could We Detect “Rogue Geoengineering?”**



*“I got a phone call from two men who said we work as consultants for the CIA and we’d like to know **if some other country was controlling our climate, would we know about it?**”*

“I told them, after thinking a little bit, that we probably would.”

Alan Robock

<https://climateviewer.com/2015/02/22/the-cia-weather-warfare-and-climate-terrorism/>

<http://www.dailymail.co.uk/wires/pa/article-2954051/Chill-factor-CIA-weather-query.html>

<https://www.youtube.com/watch?v=tYqG4KV951g>

Geoengineering Is Already Happening

Could We Detect “Rogue Geoengineering?”



A: It depends ...

On SRM magnitude and duration
On a sustained observing system

Seidel, D. J., G. Feingold, A. R. Jacobson, and N. Loeb, 2014: *Detection limits of albedo changes induced by climate engineering*. Nature Climate Change, 4, 93-98.

At www.arl.noaa.gov/CVCAAnalysis_Pubs.php

3

Dian J. Seidel – NOAA, speaking January 6, 2015 at the 20th Conference on Planned and Inadvertent Weather Modification

Seidel, D. J., G. Feingold, A. R. Jacobson, and N. Loeb, 2014: Detection limits of albedo changes induced by climate engineering. Nature Climate Change, 4, 93-98. doi:10.1038/NCLIMATE2076.
<https://ams.confex.com/ams/95Annual/webprogram/Paper260558.html>
https://www.youtube.com/watch?v=9_2yXbKUaUM

Geoengineering/ENMOD Solution

Verification

and

Transparency

The Clarity Clause

Clarity: A Sustained Observing System



Citizen-Powered Sensor Network

<http://climateviewer.org/>

<http://climateviewer.org/about/>

<https://www.gofundme.com/climateviewer>

Clarity: A Sustained Observing System

- Detect Atmospheric Conditions
- All-sky camera (streaming video)
- **Aerosol detection**, analysis, and live display (nanoparticles, radioactivity, chemical composition)

Citizen-Powered Sensor Network

<http://climateviewer.org/>

<http://climateviewer.org/about/>

<https://www.gofundme.com/climateviewer>

Clarity: Transparency

1. Create a “multilateral **registry of cloud seeding, geoengineering, and atmospheric experimentation events** with information and data collection on key characteristics” and publish hourly updates on activities to a publicly available website.
2. Require nations/states/persons to notify the multilateral registry (at least) 24 hours prior to initiation of atmospheric experimentation/modification **to ensure public notice and liability should said experimentation/modification cause monetary, environmental, or physical losses.**

Citizen-Powered Sensor Network

<http://climateviewer.org/>

<http://climateviewer.org/about/>

<https://www.gofundme.com/climateviewer>



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Spread the word and THANK YOU!