



China Blanketing Tibet With Massive Rain-Making Geoengineering Project

As a Technocracy, China has a scientific solution for everything, including its perceived lack of fresh water. Their solution is to install tens of thousands of cloud-seeding chambers in Tibet that will create clouds to dump rain on China. The project is developed by state-owned China Aerospace Science and Technology Corporation, a defense contractor. This article was reported in the South China Morning Post. □
TN Editor

China needs more water. So it's building a rain-making network three times the size of Spain

Vast system of chambers on Tibetan plateau could send enough particles into the atmosphere to allow extensive clouds to form.

China is testing cutting-edge defence technology to develop a powerful yet relatively low-cost weather modification system to bring substantially more rain to the Tibetan plateau, Asia's biggest freshwater reserve.

The system, which involves an enormous network of fuel-burning

chambers installed high up on the Tibetan mountains, could increase rainfall in the region by up to 10 billion cubic metres a year – about 7 per cent of China’s total water consumption – according to researchers involved in the project.

Tens of thousands of chambers will be built at selected locations across the Tibetan plateau to produce rainfall over a total area of about 1.6 million square kilometres (620,000 square miles), or three times the size of Spain. It will be the world’s biggest such project.

The chambers burn solid fuel to produce silver iodide, a cloud-seeding agent with a crystalline structure much like ice.

The chambers stand on steep mountain ridges facing the moist monsoon from south Asia. As wind hits the mountain, it produces an upward draft and sweeps the particles into the clouds to induce rain and snow.

“[So far,] more than 500 burners have been deployed on alpine slopes in Tibet, Xinjiang and other areas for experimental use. The data we have collected show very promising results,” a researcher working on the system told the *South China Morning Post*.

The system is being developed by the state-owned China Aerospace Science and Technology Corporation – a major space and defence contractor that is also leading other ambitious national projects, including lunar exploration and the construction of China’s space station.

Space scientists designed and constructed the chambers using cutting-edge military rocket engine technology, enabling them to safely and efficiently burn the high-density solid fuel in the oxygen-scarce environment at an altitude of over 5,000 metres (16,400 feet), according to the researcher who declined to be named due to the project’s sensitivity.

While the idea is not new – other countries like the United States have conducted similar tests on small sites – China is the first to attempt such a large-scale application of the technology.

The chambers' daily operation will be guided by highly precise real-time data collected from a network of 30 small weather satellites monitoring monsoon activities over the Indian Ocean.

The ground-based network will also employ other cloud-seeding methods using planes, drones and artillery to maximise the effect of the weather modification system.

The gigantic glaciers and enormous underground reservoirs found on the Tibetan plateau, which is often referred to as Asia's water tower, render it the source of most of the continent's biggest rivers - including the Yellow, Yangtze, Mekong, Salween and Brahmaputra.

The rivers, which flow through China, India, Nepal, Laos, Myanmar and several other countries, are a lifeline to almost half of the world's population.

But because of shortages across the continent, the Tibetan plateau is also seen as a potential flashpoint as Asian nations struggle to secure control over freshwater resources.

Despite the large volume of water-rich air currents that pass over the plateau each day, the plateau is one of the driest places on Earth. Most areas receive less than 10cm of rain a year. An area that sees less than 25cm of rain annually is defined as a desert by the US Geological Survey.

Rain is formed when moist air cools and collides with particles floating in the atmosphere, creating heavy water droplets.

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Scientists: ‘Planet-Hacking’ Plan For Atmosphere Could Keep Earth Habitable For Longer

Speculative chemtrail theories have abounded for years because people are either too lazy or too ill-equipped to do the proper research into the real roots of atmospheric tampering, namely, scientific geo-engineering. The real story behind geo-engineering is much more disturbing than any conspiracy theory. Technocrat scientists are bent on hacking the atmosphere to ‘save’ the planet. There are many geo-engineering scientists to oppose this crackpot scheme. □ TN Editor

It’s 2055. A row of airplanes streak across the sky. They’re barely visible because they’re flying far above the usual traffic of jetliners, transport balloons, and delivery drones.

The mission is to release a cloud of tiny particles into the atmosphere. The cloud creates a barrier that reflects sunlight back into space,

keeping it from being absorbed on Earth, where it would further warm the planet.

The planes do this every day, as they have for years.

They're effective. Because of these planes, there are fewer killer heat waves. Some reports say ice loss at the poles has slowed. There are side effects of altering the atmosphere. Massive droughts have caused famines, and some worry the same technology could be used as a weapon.

That scene, which describes geoengineering, isn't happening today, contrary to what some conspiracy theorists might tell you. But it soon might. Some scientists think geoengineering could be our last resort to prevent the most catastrophic effects of climate change.

As far out as it sounds, we've already seen a lesser form of related experiments with cloud seeding — a way to make it rain by dropping silver ions into the atmosphere — by governments in China and the United Arab Emirates. But the much larger-scale modification of the atmosphere is being worked on already.

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This year, a team of scientists at Harvard is hoping to launch what will be the first engineering test flight for one of the first outdoor sky-modifying geoengineering experiments. They know the technology is so risky it might never be safe enough to use, and there are major ethical considerations about who gets to decide what part of the planet gets this treatment, because the effects would be global.

What they discover could one day change the course of planetary history.

Modifying the sky with technology

The term geoengineering refers to the use of technology to modify the planet's atmosphere, and it comes in two forms: removing carbon dioxide from the atmosphere, and more controversial technologies (as in

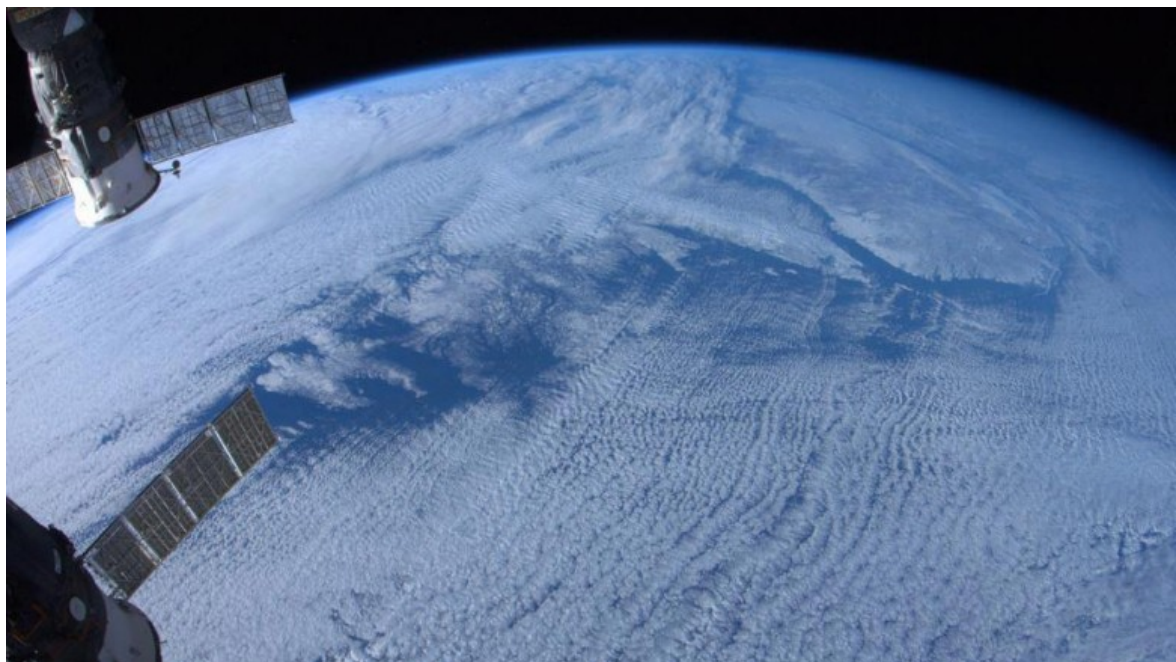
the scenario above) that modify the skies to temporarily cool the world.

Proponents of geoengineering research argue we need to push ahead with studies so that we can model the risks and benefits of the technology. Modifying the sky could put the brakes on the warming that the world is experiencing. Most scientists say it wouldn't affect the processes that are making the world warmer, which are mainly driven by greenhouse-gas emissions caused by the combustion of fossil fuels. But it might temporarily stop or slow those effects from getting worse.

Opponents argue the risks of even experimenting with solar geoengineering (also known as solar-radiation management) are too high, that alternatives haven't been properly explored, and that outdoor experiments are politically dangerous and could eventually lead to military use of weather-altering technology.

Either way, we don't know whether geoengineering will work. The Harvard experiment could change that.

[Read full story here...](#)



Scientists: Giant Sunshade In The Sky Could Solve Global Warming

Technocrat Scientists are finally exposing their crackpot schemes to cool planet earth, even though limited experiments have been conducted for decades. Technocrats believe that there is no problem that cannot be solved by science, including false problems like global warming. They say they are going to 'save' the earth, but their policies produce the polar opposite results. □ TN Editor

It sounds like the stuff of science fiction: the creation, using balloons or jets, of a manmade atmospheric sunshade to shield the most vulnerable countries in the global south against the worst effects of global warming.

But amid mounting interest in “solar [geoengineering](#)” - not least among western universities - a group of scientists from developing countries has issued a forceful call to have a greater say in the direction of research into climate change, arguing that their countries are the ones with most at stake.

Scientists have long known that manmade events like pollution in the atmosphere, smoke from forest fires and volcanic eruptions can create a cooling effect.

That has led scientists at Harvard University to [propose their own experiment](#), which they call “stratospheric controlled perturbation effect”, or [SCoPEx](#) for short. It involves using a balloon to test the controversial proposition that aerosols released at a height of 20km in the Earth’s atmosphere can alter the reflective properties of cloud cover.

Now a dozen scholars, from countries including Bangladesh, Brazil, China, Ethiopia, India, Jamaica and Thailand, have joined the debate, arguing in the journal Nature that poor countries should take a lead in the field since they have most to gain or lose from the technology.

The cooling effect has long been known in phenomena such as “ship

tracks” - narrow artificial clouds of pollution, created by emissions from ships, that contain more and smaller water droplets than typical clouds, making them brighter and more reflective of sunlight.

“Solar geoengineering - injecting aerosol particles into the stratosphere to reflect away a little inbound sunlight - is being discussed as a way to cool the planet, fast,” the scientists write in Nature.

“Solar geoengineering is outlandish and unsettling. It invokes technologies that are redolent of science fiction - jets lacing the stratosphere with sunlight-blocking particles, and fleets of ships spraying seawater into low-lying clouds to make them whiter and brighter to reflect sunlight.

“Yet, if such approaches could be realised technically and politically, they could slow, stop or even reverse the rise in global temperatures within one or two years.

“The [technique is controversial](#), and rightly so,” they add. “It is too early to know what its effects would be: it could be very helpful or very harmful. Developing countries have most to gain or lose. In our view, they must maintain their climate leadership and play a central part in research and discussions around solar geoengineering.”

[Read full story here...](#)



Genetically Modified Weather: The Tale of FROSTBAN™ Synthetic Bacteria

The point of this MIT article is that bacteria are an incredibly important part of the weather cycle, and that companies like Monsanto have for years been distributing chemicals that mess with bacteria, especially the kind that might tend to cool the earth. This is man-caused geo-engineering at its worst, but the men in this case are unaccountable Technocrats. □ TN Editor

Question: What was the very first GMO introduced into the ecosystem?

I'm willing to bet you'll never guess it right.

Answer: FROSTBAN™ genetically engineered variant of [Pseudomonas syringae](#) (*P. syringae*) bacteria.

Yes, the first GMO was a single-celled [saprophytic bacteria](#) engineered to keep frost off of crops.

How was this done?

1. *P. syringae*'s DNA was digested with enzymes;
2. Individual DNA segments were made into plasmids, which inserted randomly to form variations of recombinant DNA;
3. Other common bacteria was transformed with the recombinant DNA plasmids, which then became part of the bacteria's DNA;
4. The ice-gene segment was identified in the recombinant DNA;
5. The ice-gene was amplified via PCR ([polymerase chain reaction](#)) technology;
6. Mutation of the ice-gene was done to remove the ice-forming genetic coding;
7. Then the mutated (non-ice-forming) genetic code was inserted into the *P. syringae* bacterium to create the Ice-minus strain
8. The genetically-modified Ice-minus strain now lacks the surface coating that helps produce frost.

These facts, by themselves, are boring. FROSTBAN™ (never sold commercially - original company merged into [Seminis Inc.](#)), is boring.

The tale to come — I promise you — not boring.

We begin with excerpts from the *NPR Research News*' January 29, 2013 Story entitled: [Bird, Plane, Bacteria? Microbes Thrive In Storm Clouds...](#)

"Microbes are known to be able to thrive in extreme environments, from inside fiery volcanoes to down on the bottom of the ocean. Now scientists have found a surprising number of them living in storm clouds tens of thousands of feet above the Earth. And those airborne microbes could play a role in global climate."

Take a moment to ponder that idea. Airborne microbes (found in high-altitude clouds) might be a key factor in global climate.

"[Athanasios Nenes](#), an atmospheric chemist at the Georgia Institute of Technology, says we still don't know much about which microbes are living high up in the atmosphere or way out over the ocean.

... To find out, Nenes had some of his students hitch a ride on a

NASA airplane that was on a mission to study hurricanes. They made multiple flights and were able to collect air samples from about 30,000 feet over both land and sea. The samples turned out to contain some fungi — and a lot of bacteria. ‘And this was a big surprise because we didn’t really expect to see that many bacteria up there,’ Nenes says.

... Back on the ground, other members of the research team used genetic techniques to identify the bacteria. One of them was Georgia Tech microbiologist [Kostas Konstantinidis](#).

‘We were able to see at least close to 100 different species, of which about 20 were in most samples,’ Konstantinidis says. Some of those 100 species were from the ocean. Others came from the soil and from fresh water.”

Okay, so the [GeorgiaTech boys](#) are at 30,000 feet with NASA and find bacteria from soil, lakes and oceans. Why is this interesting? Because [bacteria play a role in natural cloud seeding](#). What does that mean? It means bacteria are a factor in rain and our natural shielding from the heat of the Sun - clouds! In short, some special airborne bacteria make clouds and rain.

“Up at around 30,000 feet, most clouds are made of ice crystals, not water droplets. To start forming, those ice crystals need to grow around some kind of particle.”

Now the import of this tale begins to unfold.

But first, a flashback to 1987, with *Time Magazine*’s “[The Most Hated Man in Science](#)” ... [Jeremy Rifkin](#).

“In the field of public policy, no one is better than Rifkin in the martial arts of social activism: lawsuits, petitions, debates, lectures and media manipulations. Each year the three attorneys on the staff of his Washington- based [Foundation on Economic Trends](#) file about six lawsuits and threaten more. Among other causes, he has battled... agricultural experiments involving open-air use of genetically altered bacteria.

... He fears that society, inspired by science, will take a diminished view of human life as no more than a few strands of DNA. 'This is a new technology that goes to the heart of our values,' he says. 'The end result could very well be a brave new world, very damaging to our human spirit.' Says Andrew Kimbrell, an attorney for Rifkin's foundation: 'Everything that's living has a meaning and is owed reverence and care. There must be a balance between efficiency and empathy. We see ourselves as helping to provide that balance.'

... One of Rifkin's first assaults on DNA technology was directed at [Steven Lindow](#), a plant pathologist for the University of California, Berkeley. Lindow had discovered a way of snipping a particular gene from bacteria so that the redesigned microbes resisted frost formation down to 24 degrees F. Theoretically, crops sprayed with the microbes could be protected from cold snaps. In 1983 Lindow got permission from the NIH to test his bugs, which he called ice-minus, on a small plot of potatoes in Northern California.

Lindow's bugs were to be the first genetically altered bacteria released into the environment. Although there was strong evidence that the microbes were benign, biologists at Berkeley and the NIH had failed to consider fully the experiment's environmental impact. The oversight allowed Rifkin to sue to block the experiment. The courts agreed, and, thanks to Rifkin, testing was postponed for three years while the NIH, the Department of Agriculture and the Environmental Protection Agency struggled to draw up rules under which genetically engineered products would move from the lab to the field."

It was Rifkin's efforts to block the field testing of FROSTBAN™ that led to the very first enactment of a county land-use prohibition on the release of GMOs into the environment. How did Rifkin convince Monterey County, California to institute the ban? A [story in the May 1987 issue of *The Scientist*](#) — while lambasting Rifkin — provided some interesting early assertions of Rifkin's that might explain how, while possibly making his previous detractors (30 years later) now have to eat their words...

*“... [E]nvironmentalist hysteria intervened, and anti-science activists successfully fought the outdoor testing of ice-minus pseudomonas (trademarked as Frostban) for more than a year. In January 1986, they alleged that one-celled organisms can cause ‘more death and destruction than all the wars we have ever fought,’ that the research that created this technology is morally bankrupt, and that ‘it is not for scientists, bureaucrats and industrialists to play God.’ Jeremy Rifkin, of the Foundation on Economic Trends, **alleged that the modified bacteria ‘may decrease rainfall.’** Such steamy eloquence was successful in Monterey County, Calif., and local authorities cancelled a test on flowering strawberry plants by the firm that developed ice-minus, Advanced Genetic Sciences (AGS)” [emphasis mine].*

So, 30 years before GeorgiaTech flies with NASA to 30,000 feet and finds terrestrial bacteria seeding clouds at high-altitude, Rifkin suggests that GMO (anti-ice-forming) bacteria might decrease rainfall.

It is important to note that one of the reasons FROSTBAN™ was eventually abandoned by its original developer was that the company could not prevent the GMO from escaping the test site and infecting other (offsite) bacteria.

What seems to have developed in its place? [Genetic modification of the crops themselves](#) to battle frost and the bacteria that help make frost.

Now, fast forward to today and Monsanto’s [Roundup brand](#) of glyphosate-based herbicides.

It has been [recently reported](#) that glyphosate-based herbicide kills beneficial soil-based bacteria.

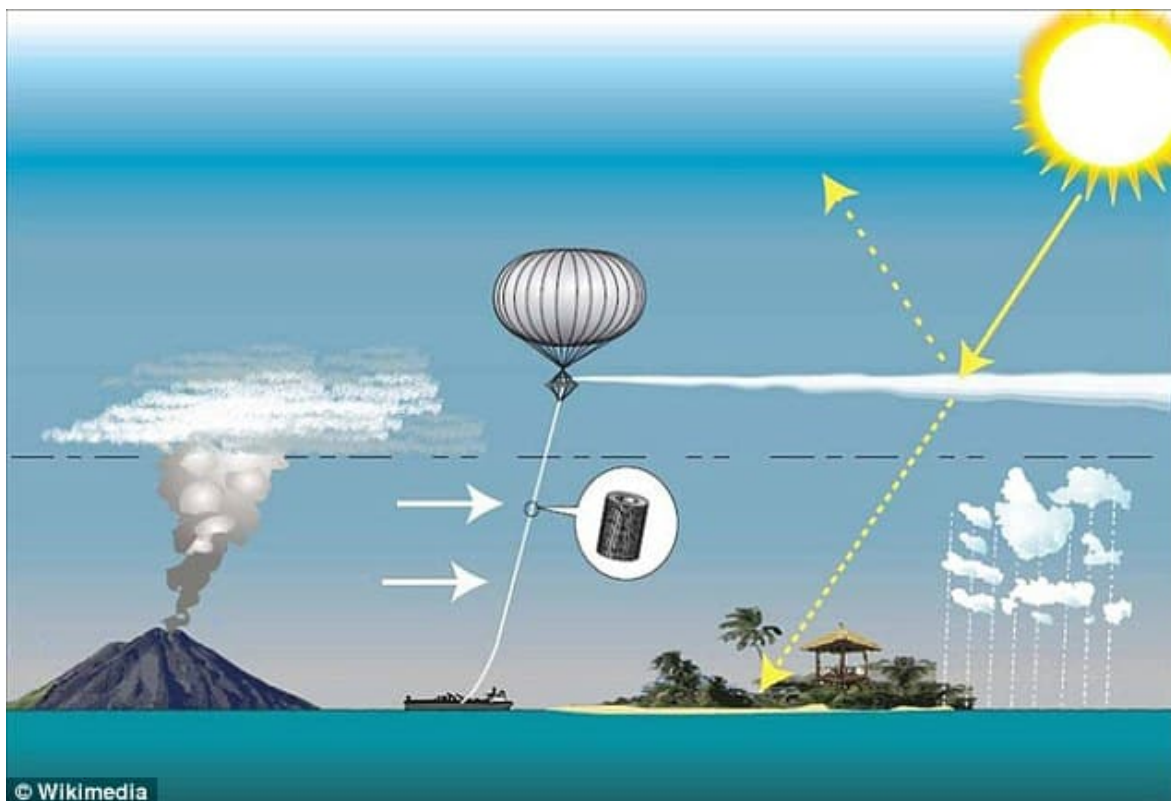
“[The] negative effects glyphosate has on soil, ... include compaction and resultant runoff, the killing of beneficial microbes and bacteria, and the exhaustion of necessary minerals and other nutrients that plants require.

... In an interview for The Organic and Non-GMO Report, [\[Robert\] Kremer](#) explained how glyphosates not only kill beneficial microbes

and bacteria but encourage the spores that produce the fungi responsible for sudden-death syndrome that affects both corn and soybeans. [Glyphosate](#) 'locks up' manganese and other minerals in the soil so that they can't be utilized by the plants that need them. It's also toxic to rhizobia, the bacterium that fixes nitrogen in the soil. Kremer found that some Roundup ready crops are more susceptible to *Fusarium*, a type of fungi that produces mycotoxins in cereal crops that are harmful, even deadly, to humans."

Maybe widespread/global killing or incidental genetic modification of beneficial soil-based bacteria that help form clouds that protect us from the Sun — and give us life-giving rain — isn't such a good idea after all.

[Read full story here...](#)



Scientists Now Argue Merits Of Spraying Aerosols Into Atmosphere To Cool Is OK

Technocrat Scientists are having a hot debate over the benefits of cooling the atmosphere with aerosols sprayed into the atmosphere, as if it has not been in testing mode for several years now. The lower world knows these as 'chemtrails'. □ TN Editor

As the world grapples with different strategies to mitigate the warming climate, few have sparked such controversy in recent times as solar geoengineering.

The proposed plan would use aerosols, fired into the stratosphere with high-flying aircraft, to cool the planet by blocking radiation from the sun.

It would essentially mimic the effects seen after volcanic eruptions - but, an analysis published at the beginning of this year warned that the approach could have grave consequences.

If the plan to artificially cool Earth were abruptly stopped, the experts warned it could trigger extreme warming at rates far more dramatic than the current climate is changing, in a phenomenon known as the 'termination shock.'

But now, some scientists have hit back, arguing that the risk might not be as it seems.

Solar geoengineering would use aerosols, fired into the stratosphere with high-flying aircraft, to cool the planet by blocking radiation from the sun. It would essentially mimic the effects seen after volcanic eruptions - but, it has remained a controversial topic

In a new paper published to the journal [Earth's Future](#), a pair of researchers from the Institute for Advanced Sustainability Studies in Potsdam, Germany and the John A Paulson School of Engineering and Applied Sciences at Harvard University explain that the current analyses

focus on the worst-case scenario.

And, while termination shock would be catastrophic, it could mostly be avoided by taking a few simple precautions.

‘Most studies so far have focused on the extremes, like in a large-scale deployment that’s ended instantly and permanently,’ explains co-author Peter Irvine, of Harvard’s engineering school, in a [video](#) about the work.

‘If solar geoengineering were deployed at small scales, say cooling only a few tenths of a degree Celsius, then if it were ended there wouldn’t be substantial warming.

‘If it were phased out over the course of decades, there would not be a rapid warming, so that would also not constitute a termination shock.

‘And if it were turned off for some reason and then turned back on again, the termination shock could be avoided.’

Aerosols will remain in the stratosphere for months after their deployment has ended, giving a large window of time to restart the process before the shock takes hold, the researcher notes.

As the world grapples with different strategies to mitigate the warming climate, few have sparked such controversy in recent times as solar geoengineering. [File photo](#)

Given the magnitude of the plan, many countries and a lot of money would be involved.

And, this means strong incentives for a backup plan, according to the researcher.

Termination shock would have dramatic effects on society and species around the world, triggering rapid climate changes that could drive everything from terrorism and economic collapse to natural disasters.

[Read full story here...](#)



USA Today: Creating Clouds To Stop Global Warming Could Wreak Havoc

Geo-engineering has been happening for several years now, but USA Today is just now admitting that possibility by stating it would be more devastating to stop geo-engineering than it might be to start it in first place. What? They haven't started it yet but they are more worried about stopping? Well, of course they have already started massive geo-engineering in the West, so their timeline is just a few years off. □ TN Editor

A soldier walks towards an abandoned house as Mount Pinatubo spews ash as high as 12 miles during its eruption on June 19, 1991. When Pinatubo erupted, it cooled the Earth for about a year because the sulfate particles in the upper atmosphere reflected some sunlight. Several scientists have proposed doing the same artificially to offset global warming.

To counteract global warming, humans may someday consider spraying

sulfur dioxide into the atmosphere to form clouds — and artificially cool the Earth.

The idea behind the process, known as geoengineering, is to keep global warming under control — with the ideal solution still being a reduction in the emissions of greenhouse gases.

However, suddenly stopping that spraying would have a “devastating” global impact on animals and plants, potentially even leading to extinction, according to the first study on the potential biological impacts of climate intervention.

“Rapid warming after stopping geoengineering would be a huge threat to the natural environment and biodiversity,” said study co-author Alan Robock of Rutgers University. “If geoengineering ever stopped abruptly, it would be devastating, so you would have to be sure that it could be stopped gradually, and it is easy to think of scenarios that would prevent that.”

Rapid warming forced animals to move. But even if they could move fast enough, they might not be able find places with enough food to survive, the study said.

“Plants, of course, can’t move reasonably at all. Some animals can move and some can’t,” Robock said.

If stratospheric climate geoengineering is deployed but not sustained, its impacts on species and communities could be far worse than the damage averted.

While animals would be able to adapt to the cooling effects of the spraying, if it’s stopped the warming would ramp up too fast for the animals to keep up.

Researchers in the study used computer models to simulate what would happen if geoengineering led to climate cooling and then what would happen if the geoengineering stopped suddenly.

Starting geoengineering then suddenly stopping it isn’t necessarily far-fetched.

“Imagine large droughts or floods around the world that could be blamed on geoengineering, and demands that it stop. Can we ever risk that?,” Robock said.

The idea behind this type of geoengineering would be to create a sulfuric acid cloud in the upper atmosphere that’s similar to what volcanic eruptions produce, Robock said. The clouds, formed after airplanes spray sulfur dioxide, would reflect solar radiation and thereby cool the planet.

[Read full story here...](#)



University: Spraying Aerosols Into Atmosphere Will Cause ‘Climate Chaos’

Geoengineering is already underway and is proving to be extremely dangerous to the world’s ecosystem. Scientists at University of Exeter

are blowing the whistle and calling for strict regulation before uncontainable damage is done. Up to this point, the Technocrat mindset on chemically dousing the atmosphere has been that since they are right (in their mind only), they need no permission or consultation with anyone else. □ TN Editor

Artificially cooling Earth to counter global warming is a 'risky strategy', new research has shown.

Scientists have previously suggested that imitating volcanic eruptions to fire aerosols into the atmosphere would help to cool the planet down.

The aerosols, one of many 'geoengineering' techniques proposed as a way to deal with [climate change](#), would cool Earth by block incoming solar radiation.

But this could have a devastating effect on global regions prone to violent storms or prolonged dry spells, new research has shown.

If aerosols are injected into the northern hemisphere, they could cause severe droughts in Africa, while if they are injected in the southern hemisphere, they could trigger a wave of tropical cyclones in northern regions of the globe.

In response, the researchers, from the University of Exeter, have called on policymakers worldwide to strictly regulate any large-scale geoengineering programmes in the future.

They say this will prevent officials accidentally inducing natural disasters in different parts of the world.

Dr Anthony Jones, a climate science expert from the University of Exeter and lead author on the paper said: 'Our results confirm that regional solar geoengineering is a highly risky strategy which could simultaneously benefit one region to the detriment of another.'

'It is vital that policymakers take solar geoengineering seriously and act swiftly to install effective regulation.'

The innovative research centres on the impact solar geoengineering methods that inject aerosols into the atmosphere may have on the

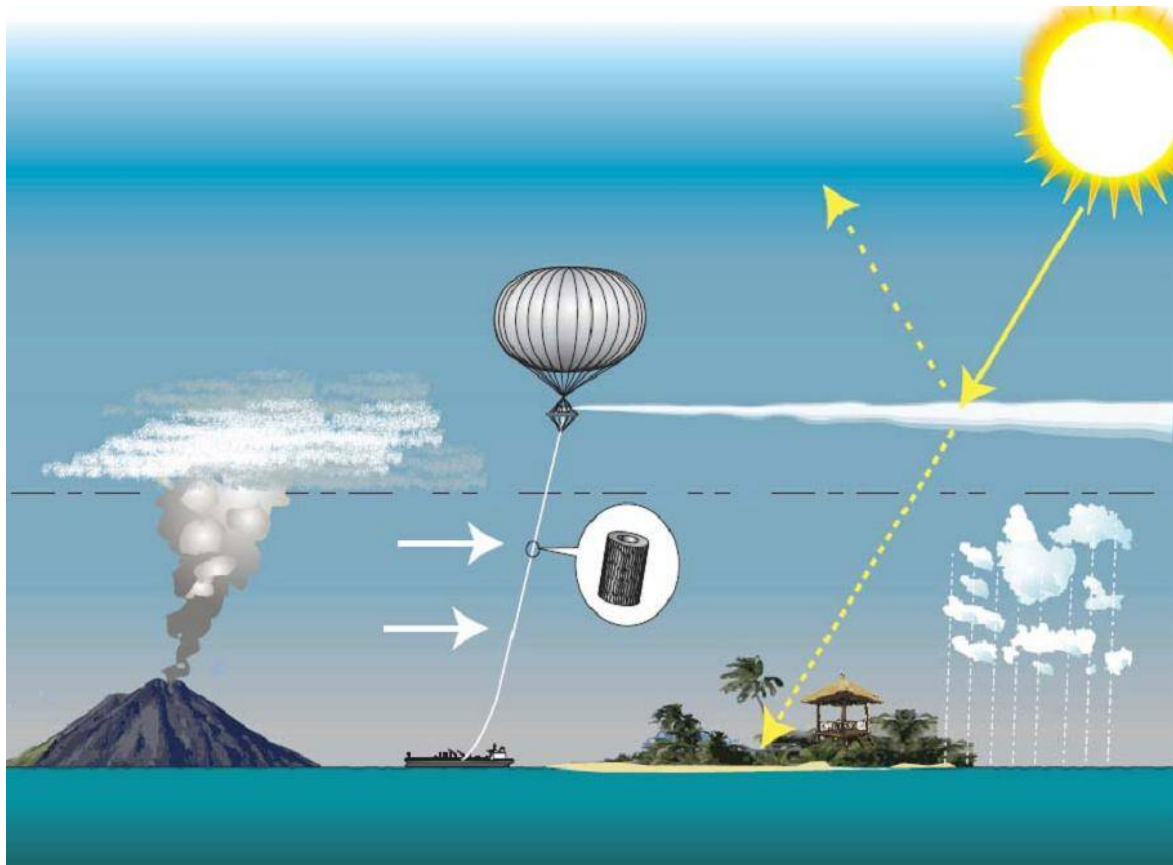
frequency of tropical cyclones.

The controversial approach, known as stratospheric aerosol injection, is designed to reflect some sunlight before it reaches Earth's surface.

The proposals mimic the aftermath of volcanic eruptions, when aerosols are naturally injected into the atmosphere.

In the study, the researchers use sophisticated simulations with a fully coupled atmosphere-ocean model to investigate the effect of hemispheric stratospheric aerosol injection on North Atlantic tropical cyclone frequency.

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Crazy Talk: Geoengineering Goes Mainstream At TED Conference, Stirs Controversy

Cooling the earth by blocking sunlight would drastically reduce food production, increase migration, regional conflicts and wars. Geoengineers have apparently fallen into the anti-human cult that has no regard for human life. They claim that they are 'saving' the world, but in fact, they will destroy it. □ TN Editor

At TED, a conference about big ideas that's largely attended by tech luminaries, it was inevitable that geoengineering — the idea of changing the earth's atmosphere to halt or reverse climate change — would come up. During the 2017 TED talks in Vancouver, Canada, multiple speakers brought up geoengineering ideas — but one climate scientist pushed back.

On Wednesday morning, computer theorist [Danny Hillis](#) got onstage and proposed a series of ideas for what he called a “thermostat to turn down the temperature of the earth.”

Hillis, the founding partner of tech innovation company [Applied Invention](#), rattled off a number of geoengineering concepts that have popped up in recent years, including building giant parasols in space, putting fizzy water into the ocean, and sending chalk into the atmosphere so that it can reflect sunlight and theoretically cool down the earth.

“We'd have to put chalk up at a rate of 10 teragrams a year to undo the effects of CO₂ we've already released,” he said. Here's how he visualized that on stage:

“It would be like one hose for the entire Earth,” he said.

There are countless reasons why geoengineering schemes like this could be dangerous. There's a fear that people will stop trying to reduce emissions if they think there's a quicker fix for the problem, and

there are also many risks that come with messing with the planet in ways we don't fully understand. Even advocates tend to acknowledge these issues.

"I have some very good friends in the audience who I respect a lot who really don't think I should be talking about this," Hillis admitted.

After Hillis finished speaking, TED curator Chris Anderson invited the first speaker of the session, climate scientist Kate Marvel, back onstage to discuss Hillis' ideas.

"Danny, you seem so nice, and I hope we can be friends, and you terrify me," she said.

Geoengineering, she said, is like going to a doctor who says 'You have a fever, I know exactly why you have a fever, and we're not going to treat that. We're going to give you ibuprofen, and also your nose is going to fall off.' It is, Marvel believes, a band-aid for the problem accompanied by consequences we can't currently imagine.

[Read full story here...](#)



Harvard Engineers Plan New “Real World” Geoengineering Experiment

The Technocrat initiative of geoengineering is finally starting to come out of the closet. In spite of the damage already done, scientists are willing to double-down on further experimentation. Were inhabitants of earth consulted on the feasibility of this? Of course not. □ TN Editor

At a recent geoengineering conference two Harvard engineers announced plans for a real-world climate engineering experiment beginning in 2018.

The science of geoengineering has increasingly become a part of the public conversation around climate change and an ever-controversial topic within the scientific community. Geoengineering is a type of weather modification (or climate engineering) which has been researched, but, until recently, has been considered too unpredictable to attempt on a large scale. According to a 2013 congressional [report](#):

The term ‘geoengineering’ describes this array of technologies that aim, through large-scale and deliberate modifications of the Earth’s energy balance, to reduce temperatures and counteract anthropogenic climate change. Most of these technologies are at the conceptual and research stages, and their effectiveness at reducing global temperatures has yet to be proven. Moreover, very few studies have been published that document the cost, environmental effects, socio-political impacts, and legal implications of geoengineering. If geoengineering technologies were to be deployed, they are expected to have the potential to cause significant transboundary effects.

In general, geoengineering technologies are categorized as either a carbon dioxide removal (CDR) method or a solar radiation management (SRM) (or albedo-modification) method. CDR methods address the warming effects of greenhouse gases by removing carbon dioxide (CO₂) from the atmosphere. CDR methods include

ocean fertilization, and carbon capture and sequestration. SRM methods address climate change by increasing the reflectivity of the Earth's atmosphere or surface. Aerosol injection and space-based reflectors are examples of SRM methods. SRM methods do not remove greenhouse gases from the atmosphere, but can be deployed faster with relatively immediate global cooling results compared to CDR methods.

The U.S. government's caution with geoengineering programs seems to be shifting as indicated by a new announcement related to an upcoming real-world climate engineering experiment. At the recent "Forum on Solar Geoengineering Research," Harvard engineer (and consistent proponent of climate engineering) David Keith announced his plan for a new project that will assess the risks and benefits of deploying geoengineering on a large public scale. Keith and fellow engineer, Frank Keutsch, will research the benefits and risks by spraying particles such as sulfur dioxide, alumina, or calcium carbonate from a high-altitude balloon over Arizona during 2018.

The move to real-world testing of geoengineering should not come as a surprise given that in the final days of former-President Obama's administration the [U.S. Global Change Research Program released a report](#) detailing the path of research into climate change, including new research on geoengineering. With the release of their report the GCRP became the first scientists in the federal government to formally recommend studies involving geoengineering. "The move will likely further normalize discussion of deliberate tinkering with the atmosphere to cool the planet, and of directly collecting carbon from the sky, both topics once verboten in the climate science community," [Science Mag](#) predicted at the time.

David Keith said there will be a multi-phase plan for research and conducting real-world testing within the next 18 months. Keith also called for stratospheric spraying within three years and continuous spraying for at least a century. [Technology Review reports](#) that Keith said his team is already in the process of "engineering design work with Arizona test balloon company World View Enterprises," and discussing the "appropriate governance structure for such an experiment."

[Read full story here...](#)



Scientists Openly Claim That Geoengineering Is Answer To Global Warming

Technocrat scientists have been experimenting with Geoengineering for years, but now it is finally in the open, as Bloomberg reports. The CIA director also recently discussed spraying the atmosphere at the Council on Foreign Relations. □ TN Editor

As long-term global average temperatures [steadily rise](#), and international efforts to address them steadily [fall short](#), some scientists and engineers are working on increasingly desperate solutions to the symptoms of global climate change.

One approach to “geoengineering” the earth is to mimic the natural atmospheric cooling effect that tends to follow the massive dispersion of sulfur dioxide into the air during a volcanic eruption. There are a few obvious problems with this approach. For instance, it’s unclear what nation or international body would be authorized to release the sulfur

dioxide. The chemical is also a pollutant that can cause acid rain. It might indirectly both eat away at the layer of ozone that protects living things from ultraviolet light and warm the lower part of the stratosphere above the tropics, about 19 miles up.

https://www.youtube.com/watch?v=r-zJH1_-rY

A group of Harvard researchers led by David Keith, a professor of applied physics and public policy, just proposed a different solution in the *Proceedings of the National Academy of Sciences*. An aerosol of calcium carbonate would have a similar cooling effect as sulfur dioxide on the upper atmosphere and help protect the ozone layer as a bonus.

The approach is akin to giving the atmosphere a handful of antacid tablets. The aerosol would block some incoming solar energy and neutralize airborne acid particles that are bad for the ozone.

The new study opens the world's atmosphere-seeding options beyond sulfur dioxide, which has caused much debate inside and outside the scientific community. Turning to a calcium compound that's among the most common on earth "could have significantly less environmental risk than sulfate aerosol," the authors write.

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