

U.S. START-UP STARTS MAKING CLOUDS TO STOP 'CLIMATE CHANGE'

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An American start-up has launched to make the controversial process of solar geoengineering a reality.

[Make Sunsets](#) claims to have already sent two balloons into the stratosphere to inject sulphur dioxide, intended to reflect the heat of the sun and cool everything under the man-made cloud.

“We make reflective, high-altitude, biodegradable clouds that cool the planet. Mimicking natural processes, our ‘shiny clouds’ are going to prevent catastrophic global warming,” the company explains on its website. “Specifically: we release a natural compound via reusable balloons to create reflective clouds in the stratosphere.”

The website also states it has completed two test flights already. In an [interview](#) with MIT’s *Technology Review*, Luke Iseman, the cofounder and CEO, said the two balloon launches had taken place in Baja California in April 2022 before the company incorporated.

“This was firmly in science-project territory,” he told the magazine of the rudimentary first flights. “Basically, it was to confirm that I could do it.”

The initial technique involved loading weather balloons with a few grams of sulphur dioxide and then filling the balloons with enough helium to reach the stratosphere where they pop as the air expands. At those high altitudes, almost to outer space, sulphur dioxide is converted into sulfuric acid, which deflects heat. But Iseman's test run didn't include any monitoring or measuring equipment, so he has no idea what happened to the balloons once they left his sight. Scientists interviewed by MIT's *Technology Review* also said that the small number of particles released in the test flights wouldn't have any impact on the climate.

Using sulphur dioxide imitates the effect of the first stage of a volcanic eruption, when the volcano spews out ashes that block some of the effects of the sun, but there are several other geoengineering methods, including spraying aerosols into the stratosphere, or salt water into clouds.

The simple technique Iseman used was outlined in a [white paper](#) published in 2018 by the Harvard University Belfer research centre. The paper also sounded the alarm on just what Iseman did—DIY, unregulated attempts at geoengineering. The rest of his claims, principally that “1 gram of our clouds offsets the warming that 1 ton of CO₂ emissions creates for a year,” is based on modelling done by scientists, *Technology Review* [reports](#).

The idea of interventions to deflect the sun's rays has been proposed since scientists found evidence of rising temperatures and meteorological changes in the 1960s, but most ideas, such as placing giant mirrors in outer space, seemed impossible. Like all human interventions, secondary effects needed to be considered, as they do today. With respect to Make Sunsets, some scientists see it as the last chance to save the planet from 'climate change,' but others are not convinced, offering several arguments against it, from the possibility of a heating rebound effect (should maintenance of the reflective layer cease), to potential geopolitical conflicts as nations fight to influence the climate according to their own interests.

Solar geoengineering has only been modelled, never applied in real life, and much remains to be discovered about potential results from the technology.

A recent [report](#) from the National Academies of Science stated, "Scientific understanding of many aspects of solar geoengineering technologies remains limited, including how they could affect weather extremes, agriculture, natural ecosystems, or human health."

Other scientists around the world are [calling for](#) a global non-use agreement for solar geoengineering.

As an example of how controversial the technology is, in 2021, a leading Harvard researcher had to cancel a planned experiment in northern Sweden after the Sami people, an ethnic group over whose land he had hoped to launch, objected. Still, geoengineering remains in the scientific and public imagination and as Iseman's initiative shows, is gaining steam in at least some circles.

In October, the U.S. National Academies [announced](#) it would develop a formal research agenda and standards for research practices. Then in December, the U.S. Congress approved funding for [a five-year study](#) on various solar geoengineering techniques.

Iseman justifies what some consider a rogue climate-engineering attempt with what he evaluates as a dire climate situation. "It's morally wrong, in my opinion, for us not to be doing this," he said.

He told *Technology Review* that his project was part business and part activism. "We joke slash not joke that this is partly a company and partly a cult," he added.

He wants his company to enliven the debate on geoengineering and said he was not surprised by a reaction that aims to demonise him.

He's pressing forward, too. On the company's website, anyone can buy "cooling credits" for a mere ten dollars or contact the company to discuss a bulk order. Make Sunsets promises to "offset a substantial amount of warming in 2023."