

**Controversial solution could be exactly what planet needs or a colossal disaster,**  
CNN, February 12, 2023  
<https://www.cnn.com/2023/02/12/world/solar-dimming-geoengineering-climate-solution-intl/index.html>

**This controversial climate solution could be exactly what the planet needs. Or it could be a colossal disaster,**  
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Important: *This article was rewritten to make it easier for students to understand.*

When a US company, Make Sunsets, released two weather balloons over Mexico's Baja California last year, it started a big debate about a very controversial climate solution. The balloons were filled with helium and a little bit of sulfur dioxide. The idea was that the balloons would go high into the sky and burst, spreading sulfur dioxide to reflect sunlight and cool the Earth a little. Some people thought it was just a trick. We don't know if any particles were released or if the balloons even reached the right height. But Make Sunsets' experiment is important because it crossed a line in the debate about solar geoengineering.

### **What is Solar Geoengineering?**

Solar geoengineering, also known as solar radiation management, is about lowering the Earth's temperature by reflecting sunlight away or letting more heat escape into space.

### **There are three main methods:**

- **Marine cloud brightening:** Making clouds over the ocean more reflective by spraying them with sea salt.
- **Cirrus cloud thinning:** Adding particles to high clouds to make them thinner so they trap less heat.
- **Stratospheric aerosol injection:** Spraying tiny particles like sulfur dioxide into the high atmosphere to reflect sunlight back into space. This can be done with balloons or special planes. This method is inspired by volcanoes. When Mount Pinatubo erupted in 1991, it cooled the Earth by 0.5 degrees Celsius.

### **Why is Solar Geoengineering a Big Deal?**

Solar geoengineering has been talked about since the 1960s, but now it's getting more attention because we are not doing enough to stop climate change. The world is getting warmer, and this can lead to more floods, droughts, wildfires, and food shortages. Some scientists have even suggested using moon dust to block sunlight.

### **Why Do People Disagree About It?**

Supporters say solar geoengineering is a cheap way to cool the planet quickly. A 2018 study from Harvard said it would cost about \$2.25 billion a year for 15 years. But critics worry about many things, like changing rain patterns and causing problems for crops. They say it could cause conflicts because some places might benefit while others could be harmed. Some are concerned it could hurt the ozone layer, which protects us from harmful rays.

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### **Challenges and Risks**

Solar geoengineering would need constant maintenance. If we stop, it could lead to a "termination shock" with rapid warming. It also requires countries to work together forever, even those at war. Some fear it could distract from cutting pollution and be used by polluters as an excuse to keep polluting. In 2021, nearly 400 scientists called for an agreement to restrict solar geoengineering research. They want it treated like chemical weapons or nuclear testing.

### **Current Status**

Interest in solar geoengineering is growing, especially in the US. In 2019, Congress gave \$4 million to the National Oceanic and Atmospheric Administration for research. In 2021, the Biden administration started a five-year plan to study it. But outdoor experiments face resistance. Harvard's balloon test in Sweden was stopped after local Indigenous Sami people protested. Mexico banned solar geoengineering experiments after Make Sunsets' balloon release. As the world gets hotter, the debate over solar geoengineering will likely grow. Some see it as a last chance to fix the climate; others see it as too risky.

### **Quotes from the Article:**

- "When Mount Pinatubo erupted in the Philippines in 1991, the sulfur dioxide it expelled high into the atmosphere had the effect of temporarily cooling the planet by 0.5 degrees Celsius (nearly 1 degree Fahrenheit)."
- "Just because we're desperate doesn't suddenly make solar geoengineering a good idea, because the risks are so immense," Lili Fuhr, from the Center for International Environmental Law, told CNN.
- "While pretty much no one is claiming solar geoengineering could replace planet-warming pollution cuts and solve climate change, supporters argue it could have a big planetary cooling effect for a relatively small price tag. A 2018 Harvard study estimated it would cost around \$2.25 billion a year over a 15-year period."
- "The world needs to cut emissions, 'no question,' David Keith, professor of applied physics and public policy, at Harvard University told CNN. But it doesn't mean we can afford to ignore other climate solutions, he added."
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