

Scientists consider the possibility of adding aerosols or modifying clouds to slow global warming

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(Phys.org)—Scientists looking at alternative approaches to staving off global warming have published two Perspective pieces in the journal

Science. In the first, Ulrike Niemeier and Simone Tilmes with the Max Planck Institute and the National Center for Atmospheric Research in the U.S., respectively, address the possibility of injecting aerosols into the atmosphere as a means to limit heat passing through. In the second, Niemeier has paired up with Blaž Gasparini with the Institute of Atmospheric and Climate Science in Switzerland to look at the issues involved with attempting to disperse clouds that prevent heat in the atmosphere from escaping back into space. In an editorial in the same journal issue, Janos Pasztor, Cynthia Scharf and Kai-Uwe Schmidt consider how we might govern geoengineering attempts to prevent a reckless few from possibly destroying the planet they are trying to save.

Governments send representatives to climate meetings hoping to establish a consensus regarding carbon emission reductions, and the citizens of the world debate the source or even reality of [global warming](#) and what ought to be done about it. Yet the planet continues to warm. Scientists around the globe are convinced that unless something is done soon, the planet could become a miserable place, or worse, we could cause our own extinction. While some progress has been made in limiting carbon emissions, most would agree such efforts are falling short. For that reason, some scientists have begun looking at other ways to prevent catastrophe. Two of the most debated are aerosol injection and [cloud seeding](#).

The idea behind injecting aerosols into the atmosphere, as Niemeier and Tilmes point out, is to mimic the cooling that occurs when volcanoes erupt. Along with smoke, volcanoes also emit a lot of sulfur, which is why scientists suggest we do the same artificially. But that might be easier said than done, Niemeier and Tilmes note, because it would involve replicating an eruption the size of Mount Pinatubo every day for approximately the next century and a half.

And there are problems with cloud seeding, too, which might be done to

disperse cirrus [clouds](#), preventing them from trapping heat—the main problem is lack of precision; doing it wrong could lead to more warming, for example.

For these reasons and many more, Pasztor, Scharf and Schmidt suggest taking a very serious look at how to prevent one country, group or even a wealthy individual from striking out on their own with such approaches. Adding a governing body to the equation, they suggest, could prevent these scenarios.

More information: Ulrike Lohmann et al. A cirrus cloud climate dial?, *Science* (2017). [DOI: 10.1126/science.aan3325](https://doi.org/10.1126/science.aan3325)

Ulrike Niemeier et al. Sulfur injections for a cooler planet, *Science* (2017). [DOI: 10.1126/science.aan3317](https://doi.org/10.1126/science.aan3317)

Janos Pasztor et al. How to govern geoengineering?, *Science* (2017). [DOI: 10.1126/science.aan6794](https://doi.org/10.1126/science.aan6794)

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