

## UCS Position on Solar Geoengineering

February 2019

Deep cuts in emissions of heat-trapping gases and investments in adaptation to now unavoidable impacts must remain humanity's first-line responses to climate change. Emission reductions and adaptation must be carried out at a greatly accelerated pace, and in a manner consistent with [sustainable development](#) and efforts to eradicate poverty.

Limiting global temperature increase to the [Paris Agreement's target](#) of "well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C" requires that the US and other nations bring net global carbon dioxide (CO<sub>2</sub>) emissions to zero by no later than mid-century, alongside deep cuts in emissions of other heat-trapping gases.

Avoiding catastrophic climate change through accelerated mitigation and adaptation alone may be feasible, but it is by no means certain. The world faces [severe climate risks](#) even at 1.5°C.

The history of scientific understanding of climate change is one in which we have consistently confronted climate impacts and risks more swiftly and at lower increases in temperature than [previously anticipated](#). We must be prepared for the prospect that such [trends will continue](#).

**A precautionary approach to grave climate risks is one in which society invests in developing a careful understanding of all possible climate response options, including ones that themselves pose substantial risks and uncertainties.** This includes developing a careful understanding of the possible future use of solar geoengineering technologies to rapidly cool the Earth by reflecting sunlight back into space.

Toward that end:

1. The Union of Concerned Scientists (UCS) strongly opposes any deployment of solar geoengineering because solar geoengineering technologies pose significant environmental, ethical and geopolitical risks, challenges and uncertainties.
2. Further, UCS believes that society must consider the potential escalation of solar geoengineering research and possible future deployment with great care and with

substantial leadership from nations and communities most vulnerable to climate change.

3. UCS encourages computer modeling and monitoring of the climatic impacts of natural events such as volcanic eruptions to improve understanding of the potential efficacy and risks of solar geoengineering.
4. UCS strongly opposes [stratospheric tests](#) of solar geoengineering technologies that would be of sufficiently large scale to have a measurable impact on Earth's surface climate.
5. UCS believes that smaller-scale outdoor experiments should only go forward if legitimate independent governance mechanisms are established to ensure that proposed experiments have high scientific quality and value and that they pose negligible environmental, social and legal risks. Such [governance mechanisms](#) must be transparent and inclusive, ensuring meaningful engagement with climate vulnerable communities and other civil society stakeholders, and provide oversight over the duration of the experiments.
6. UCS calls on the scientific community to support independent governance of proposed outdoor experiments; accept funding for solar geoengineering experiments only from governments and other entities who unequivocally support mitigation and adaptation as the first-line solutions to climate change; and co-develop solar geoengineering research priorities in collaboration with researchers and stakeholders in [climate vulnerable nations and communities](#).