

Advent of geoengineering may help lower temperature of debate over climate change

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Geoengineering, an emerging technology aimed at counteracting the effects of human-caused climate change, also has the potential to counteract political polarization over global warming, according to a new study.

Published Feb. 9 in the journal *Annals of the American Academy of Political and Social Science*, the study found that participants—members of large, nationally representative samples in both the United States and England—displayed more open-mindedness toward evidence of climate change, and more agreement on the significance of such evidence, after learning of geoengineering.

"The result casts doubt on the claim that the advent of geoengineering could lull the public into complacency," said Dan Kahan, professor of law and psychology at Yale Law School and a member of the research team that conducted the study.

"We found exactly the opposite: Members of the public who learned about geoengineering were more concerned and less polarized about global warming than those who were told of the need to reduce [greenhouse gas emissions](#) as a way to reduce climate change," he said.

As defined by the U.S. National Academy of Sciences (NAS), "geoengineering" refers to deliberate, large-scale manipulations of Earth's environment in order to offset some of the harmful consequences of human-caused climate change. Potential examples include solar

reflectors that would cool global temperatures by reflecting more sunlight away from the Earth and so-called "carbon scrubbers," which would remove CO₂ from the atmosphere.

Both the NAS and the Royal Society, the preeminent association of expert scientists in the United Kingdom, have issued reports calling for stepped-up research on geoengineering, which also was identified as a necessary measure for counteracting the impact of global warming in the latest assessment report of the United Nations' Intergovernmental Panel on Climate Change.

In the study, researchers divided the 3,000 participants into groups, providing some with information on geoengineering and others with information on proposals to limit greenhouse gas emissions. They instructed the participants to read and evaluate actual study findings offering evidence human activity, including the burning of fossil fuels, was heating the Earth's temperature and creating serious environmental risks including coastal flooding and drought.

"The participants who learned about geoengineering were less polarized about the validity of the evidence than were the ones who got information on carbon-emission limits," said Kahan.

"In fact, the participants who read about carbon-emission limits were even more polarized than subjects in a control group, who read the information on the evidence of global warming without first learning about any potential policy responses," he said.

This result was consistent with previous research on a dynamic known as "cultural cognition," which describes the tendency of individuals to react dismissively to evidence of [environmental risks](#) when that evidence threatens their values or group identities.

"The information on geoengineering," said Kahan, "helped to offset bias by revealing to those study participants with a pro-technology outlook that acknowledging evidence of [global warming](#) does not necessarily imply the 'end of free markets' or the 'death of capitalism,' a theme that some [climate-change](#) policy advocates emphasize."

Kahan added that the significance of the research extended beyond the issue of whether the advent of [geoengineering](#) would stifle or promote public engagement with climate science.

"What's important is that people assess information about science based not only on its content but on its cultural meaning or significance," explained Kahan. "The study supports the conclusion that science communicators need to broadcast engaging signals along both the 'content' and 'meaning' channels if they want their message to get through."

More information: *Annals of the American Academy of Political and Social Science*, [DOI: 10.1177/0002716214559002](https://doi.org/10.1177/0002716214559002) , [papers.ssrn.com/sol3/papers.cfm ... ?abstract_id=1981907](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1981907)

Provided by Yale University

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