

How will the global community react if vulnerable nations pioneer solar radiation geoengineering?

August 24 2021, by Marissa Shapiro



X-rays stream off the sun in this image showing observations from by NASA's Nuclear Spectroscopic Telescope Array, or NuSTAR, overlaid on a picture taken

by NASA's Solar Dynamics Observatory (SDO). Credit: NASA

Jonathan Gilligan, associate professor of Earth and environmental sciences and civil and environmental engineering, and a group of international researchers have illustrated potential international conflicts over climate change.

One of a larger group of studies, this work engaged in a role-playing scenario set in 2040 in which the world has failed to control [greenhouse gas emissions](#) and climate change has become increasingly severe. The scenario examined the international political response to a small group of especially vulnerable nations or private actors initiating solar radiation geoengineering—a controversial response to climate change that attempts to reflect sunlight away from the planet to cool it off. In the scenario these nations or actors did not seek the assent of the rest of the world. Two groups of researchers acted as teams of advisers making recommendations to a coalition of "Great Powers"—the United States, the Russian Federation, China, the UK, France, Germany and Japan—for how to respond to this threat.

"One group responded aggressively, adopting a perspective characteristic of the 20th century in which these nations—permanent members of the UN Security Council and Germany and Japan—saw themselves as the natural leaders of the world seeking to put the vulnerable-nations coalition in its place," Gilligan said. "The other group recognized that the age of great-power hegemony had passed and took a more cooperative and conciliatory position regarding the vulnerable nations coalition."

On the heels of a cataclysmic report on climate change from the Intergovernmental Panel on Climate Change, Gilligan and his colleagues are delivering yet another warning of the risks of international conflict

related to global warming.

When a group of vulnerable nations resorted to geoengineering on their own to combat climate change, the geopolitical response of other nations depended on the perspectives that each brought to its role in the community of nations, Gilligan said. These insights should help policymakers and the public understand the risks of conflict that could arise if the nations of the world fail to control greenhouse gas emissions and climate change.

Gilligan hopes that understanding these dangers today will give nations and policymakers advance warning of future political risks and will help them develop cooperative approaches to managing [climate change](#) in the years ahead.

More information: Felix Schenuit et al, A scenario of solar geoengineering governance: Vulnerable states demand, and act, *Futures* (2021). [DOI: 10.1016/j.futures.2021.102809](https://doi.org/10.1016/j.futures.2021.102809)

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