



Impacts of stratospheric aerosol geoengineering strategy on Caribbean coral reefs

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Purpose: Currently, negotiation on global carbon emissions reduction is very difficult owing to lack of international willingness. In response, geoengineering (climate engineering) strategies are proposed to artificially cool the planet. Meanwhile, as the harbor around one-third of all described marine species, coral reefs are the most sensitive ecosystem on the planet to climate change. This research aims to model the impacts of stratospheric aerosol geoengineering on coral reefs.

Findings: This study shows that (1) stratospheric aerosol geoengineering could significantly mitigate future coral bleaching throughout the Caribbean Sea; (2) Changes in downward solar irradiation, sea level rise and sea surface temperature caused by geoengineering implementation should have very little impacts on coral reefs; (3) Although geoengineering would prolong the return period of future hurricanes, this may still be too short to ensure coral recruitment and survival after hurricane damage.

Originality: This is the first time internationally to quantitatively assess the impacts of geoengineering strategies on coral reefs.

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<https://www.newscientist.com/article/2151012-dimming-the-sun-could-save-corals-from-bleaching-and-hurricanes/>