



## **Atlantic hurricane response to geoengineering**

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Devastating Atlantic hurricanes are relatively rare events. However their intensity and frequency in a warming world may rapidly increase - perhaps by a factor of 5 for a 2°C mean global warming. Geoengineering by sulphate aerosol injection preferentially cools the tropics relative to the polar regions, including the hurricane main development region in the Atlantic, suggesting that geoengineering may be an effective method of controlling hurricanes. We examine this hypothesis using 6 Earth System Model simulations of climate under the GeoMIP G3 and G4 schemes that use aerosols to reduce the radiative forcing under the RCP4.5 scenario. We find that although temperatures are ameliorated by geoengineering, the numbers of storm surge events as big as that caused the 2005 Katrina hurricane are only slightly reduced compared with no geoengineering. As higher levels of sulphate aerosol injection produce diminishing returns in terms of cooling, but cause undesirable effects in various regions, it seems that stratospheric aerosol geoengineering is not an effective method of controlling hurricane damage.