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Supplement of

Identifying the sources of uncertainty in climate model simulations of solar radiation modification with the G6sulfur and G6solar Geoengineering Model Intercomparison Project (GeoMIP) simulations

Daniele Visioni et al.

Correspondence to: Daniele Visioni (dv224@cornell.edu)

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| Model          | Ocean biogeochemistry | Land model | Atmospheric chemistry | Stratospheric Aerosol approach |
|---------------|-----------------------|------------|-----------------------|-------------------------------|
| CESM2-WACCM   | Interactive (MARBL-BEC) | Interactive (CLM5) | Stratospheric-tropospheric chemistry | Modal (4 modes) MAM4 coupled to chemistry |
| CNRM-ESM2-1   | Interactive (PISCESv2-gasf) | Interactive (ISBA-CTRIP) | Interactive stratospheric. Non-interactive tropospheric | Prescribed |
| IPSL          | Interactive (NEMO-PISCES) | Interactive (ORCHIDEE) | Stratospheric-tropospheric chemistry | Sectional |
| MPI-ESM (both) | Interactive (HAMMOC5) | Interactive (JSBACH3.2) | Non-interactive | Prescribed |
| UKESM1-0-LL   | Interactive (MEDUSA) | Interactive (JULES) | Stratospheric-tropospheric chemistry (UKCA) | Modal (4 modes) coupled to chemistry |

Table S1. Models components for the models participating in the G6 experiments. Further information can be found at the references in Table 1.
Fig. S1 As in Fig. 2f, but not normalized by the warming in the last 20 years.
**Fig. S2** Latitudinal distribution of yearly-averaged AOD normalized by amount of SO$_2$ injected in that year. The color scale indicate the year of analyses.
Fig. S3 Global mean values for precipitation changes in the period 2081-2100.

- SSP5-8.5 minus SSP2-4.5
- G6sulfate minus SSP2-4.5
- G6solar minus SSP2-4.5

Legend:
- Land+ocean
- Land only