

Interactive comment on “Impacts of Stratospheric Sulfate Geoengineering on Tropospheric Ozone” by Lili Xia et al.

Anonymous Referee #2

Received and published: 7 July 2017

On the whole, this paper is well-written except for a few places where clarification is needed. For one, the description of the formulation of stratospheric chemistry in CAM-chem is missing. I was also wondering if the halogen loading and GHG concentrations all follow RCP 6.0 specifications such that the only differences between these three ensemble runs are sulfate aerosol loading for G4SSA and reduced solar fluxes for G4SSA-S. Regardless, the time series of halogen loading should be given at some point in section 2. Citation of other research papers alone won't do for a broader readership.

Other minor points, (1) Lines 75-76: Please explain how emission pathways can determine transport from the ozone-rich stratosphere. (2) Lines 304-305: Can you be more specific on how " the slow-down hydrological cycle under SRM will further enhance this

C1

tropospheric humidity reduction"?

Lastly for the geoengineering assessment to be practical, there needs to be a specific metric for measuring the impact. For example, the change in the distribution of tropospheric ozone in terms of the probability density distribution of surface ozone concentration might be useful. And the authors need to discuss what can be improved in the modeling effort in the discussion section.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2017-434>, 2017.

C2