

Authors response to the reviewer's comments:

We thank the reviewer for positive review and helpful and constructive comments for improving the manuscript.

We have now modified the manuscript accordingly to present the results in a more concise and quantitative manner, in particular Sections 3.3 and 3.4 which deal with ozone and water vapour changes. We have also included Figure 8 (which constitutes an updated version of Figure S3 that was previously in the Supplementary material) in order to show a quantitative relationship between the SAI-induced tropical ozone and temperature responses, and thus highlight that even though large uncertainties are found in model responses, these are often coherently correlated within individual models.

We have also split the final '4. Summary and Discussion' section into two separate sections in order to more clearly distinguish between the main results and what conclusions do we draw from them and how can they inform future geoengineering studies (including that caution is needed when interpreting the results of studies carried out with only a single model, as mentioned by the reviewer).

As also suggested by the reviewer, we have now included a summary Figure 12 that quantifies some of the previously discussed stratospheric responses (both in absolute terms and normalised with the corresponding global mean surface cooling) for each injection location and each model, as well as shows a measure of the inter-model spread. We discuss this figure and how the uncertainty in model SAI responses, as measured by the inter-model spread, varies with the injection location in Section 4. Furthermore, as also suggested by the reviewer, we have added Figure 13 which extends this discussion to some of the surface climate variables discussed in more detail in PART1 to give the reader better insight into the overall picture as well as facilitate an easier connection between how the stratospheric responses can influence the surface changes below (a more in-depth discussion of that is already included in the results section).

Finally, as also suggested by the reviewer, we have added final remarks to Section 5 about how our findings are important for studies using a feedback algorithm.

We believe that our manuscript in the current form makes a valuable contribution by introducing an experimental framework for inter-model comparison and assessment of climate model responses to SAI, and attributing some of the sources of inter-model spread to model representation of particular microphysical, dynamical and chemical processes.