

This paper describes differences in the simulations of SAI between 3 GCMs, using a bulk aerosol model as a bench mark for comparison. The work builds on previous experiments in two ways; it improves upon the experimental design of the GeoMIP experiments by more intentionally controlling the injection strategy and amount to better compare between models, and by varying latitudinal injection location in a multi-model ensemble where previously only single model studies have been used.

This represents a useful step forward for SAI modeling, and highlights key areas where model biases generate large and cascading uncertainties. However, in some ways this paper lacks a clear scientific question, and instead reads as a highly qualitative description of outcomes (when it is clear the authors have done substantial analysis, this just needs to be communicated better). The authors provide motivating rationale for model differences, however the results could be benefitted by more concise and **quantitative** description. For this reason I would recommend this paper for revision and resubmission.

Major Comments:

1. In line with the original comments of reviewer #1, this work has not modified the text to reflect a clearer scientific question/ framing for the work.
 - a. The relationship between the injection location and inter-model uncertainty is not discussed but could be an excellent motivational metric for these findings.
 - b. The paper could be tied together by a summary figure quantifying a measure of the normalized inter-model spread as a function of injection location and variable of interest – this could support the currently qualitative descriptions of the large/small uncertainties of high or low latitude injections. At present the relevance of pursuing multiple injection locations is somewhat motivated in the introduction but is not adequately contextualized in the results and discussion.
2. The relationship between these stratospheric and circulation responses are not easily linked to the surface responses articulated in PART1. It would be useful to the reader and motivating overall to extend some sort of uncertainty vs. injection location for surface T and P-E beside those variables processed here. This will give the reader greater insight into the total picture.
3. I would recommend revision to the results section of this work with a more clear directive, “how does injection location impact inter-model spread” in addition to the question currently being answered which seems to be “what are the key features of inter-model spread and where could they come from?”.
4. I’d urge the author to modify the discussion to contextualize why these findings might be useful to understanding or improving feedback control methods or how these may influence/compare with conclusions extrapolated from single model studies. There are several instances in which the author corroborates a qualitative feature against a previous single model study, but are there places where the assumption from a previous single model study now stands challenged in the context of this work?

Minor Comments:

I believe the authors have adequately addressed the smaller comments introduced by the previous reviews. Only some moderate reworking of the presentation remains.