

Dear Authors,

Thank you for your great efforts in addressing the reviewers' comments and revising the manuscript. After reading through your replies and revision, I have the following comments that need to be addressed before the final publication of your manuscript in ACP. The line numbers given below are those in the revision file with track changes.

1. Your reply to MC3 (copied below)

***MC3) I see no comment on data availability which is crucial before publication. In particular, having SI tables or a netcdf archive with the processed data displayed on key figures (for both model and observations) would be really welcome (at least for figures 2, 5, 8). This would facilitate comparison to your results for future studies.***

*We apologize for the lack of link - we planned to include it during the revision process as the process is not straightforward. All data is now available online and the DOI has been provided in the section "Data availability".*

I checked the DOI you provided and found the 2-D and 3-D data files from the model outputs. However, I was not able to find "***the processed data displayed on key figures (for both model and observations)***".

Please provide the processed data displayed on all figures for both model and observations (including figures in the supplement) and list them clearly in the readme file.

2. L51: You changed 7 Tg-S to 14 Tg. Is this 14 Tg for sulfuric acid mentioned at the beginning of the sentence? If yes, should be

$$7 \text{ Tg-S} = \sim 7 \cdot 98/32 = 21.4 \text{ Tg H}_2\text{SO}_4$$

3. L61: You mentioned here "below the lower limit". Could you provide the exact values used in the cited studies?

4. L77: What is "volc-long-eq"? Didn't find it in other places in the text and in the replies to comments.

5. L78: Add some relevant references after "set up".

6. L87-88: Could you provide values or range of simulated aerosol burden mentioned here?

7. L131, L134: Put cited author name out of ( )?

8. L152: EMAC simulations

9. L159: Please eruption time and injection amount for Spurr and Lascar mentioned here.

10. L335-336: What is "H<sub>2</sub>SO<sub>4</sub> density"? Sulfate particle number density?

11. L345: please provide a unit for column density. Do you refer to the mass column density?

12. L417: " e " a typo?

13. L454-455: Please briefly explain how global mean SAODs were calculated, especially for AVHRR with lots of missing data (Fig 2i).

14. L566: fig. → Fig.

15. L630: Was any weight applied for the average calculation?

Best,

Fangqun

ACP co-Editor