Authors' Response to the Editor of

HSW-V v1.0: localized injections of interactive volcanic aerosols and their climate impacts in a simple general circulation model

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egusphere-2024-335

EC: ***Editor Comment***, AR: Author Response, □ Manuscript Text

1. Editor Comments

1.1. Comment 1

EC: ***In particular, please note that for your paper, the following requirement has not been met in the Discussions paper:***

- ***The main paper must give the model name and version number (or other unique identifier) in the title.***

Please add the name and version number of the model used (E3SMv2) to the title of your manuscript

AR: Rather than include the name of the climate model employed in our experiments (E3SMv2), we decided to give the specific model configuration and parameterization set presented in this work a name, "HSW-V". This model name is now present in the manuscript title with the version number "v1.0". The full article title is now *HSW-V v1.0: localized injections of interactive volcanic aerosols and their climate impacts in a simple general circulation model*.

EC: ***Your reference list includes works "in preparation". Such works can be cited upon submission if being available to the reviewers. They should not be cited in the final, accepted manuscript, unless published, accepted for publication, or available as preprint with a DOI.***

AR: We have removed references to works in preparation.

EC: ***Regarding figure 8: Please ensure that the colour schemes used in your maps and charts allow readers with colour vision deficiencies to correctly interpret your findings. Please check your figures using the Coblis – Color Blindness Simulator (https://www.color-blindness.com/coblis-color-blindness-simulator/) and revise the colour schemes accordingly with the next file upload.***

AR: We thank the editor for the careful consideration of this figure's visibility. We have uploaded Figure 8 to the Coblis Color Blindness Simulator as suggested. We find that the color of the cooling rate contours in panel (a) are difficult to distinguish for both Red-Blind/Protanopia and Monochromacy/Achromatopsia. However, we do not think that these contours would be confused with those of AOD even in the monochromatic case, since the AOD contours in this panel are white, and the cooling rate contours are clearly specified in the figure legend. We have updated the figure caption to make this more explicit to avoid confusion:

Figure 8. **(a.)** Zonal-mean AOD in the latitude-time plane for the first 90 days post-injection. Overplotted is the cooling rate imposed on the lowest model level by shortwave extinction every 0.15 K day1 in solid red contours. **(b)** Logarithmic zonal-mean AOD over 1000 days. The 0.1 and 0.001 AOD lines are in bold. Cooling rates are not overplotted in this panel. A faint dotted line shows the equator, and a black triangle shows the time and latitude of the injection.