

**Dear Prof. Goosse,**

Thank you very much for accepting our manuscript for publication. We have addressed the comments and suggestions made by the reviewer and we have included those in the revised version. Detailed answers to the comments can be found in the second part of this document.

We remain very grateful for your support and hope that our manuscript now meets all the requirements for publication.

Yours sincerely and with best regards, on behalf of all co-authors

Eva Hartmann

**Dear Reviewer #2,**

Thank you very much for the positive feedback! We have gladly incorporated the further suggestions for improvement into our manuscript. Details follow below:

I'm happy to see that this manuscript has been substantially improved. I only have a few minor comments listed here below and after they have been addressed I recommend it to be publishable in *Climate of the Past*.

L76: Not sure outbreaks is correct here. Maybe active volcanic periods or something similar.

- You are right. We have changed the sentence to: "Periods of high volcanic activity are prominent candidates for conducting sensitivity experiments over the last few millennia." Additionally, we adjusted the "outbreak" in one of the next sentences to: "The effects of the Samalas eruption were felt throughout the Mediterranean and contributed to considerable cooling and existential crises in various regions."

L167: A lot of citations missing here. Either, a citation to an overview paper like Marshall et al (??) (and write "see reference therein" etc.) or cite more papers would make sense. Example: Stenchikov et al., 2009; Shindell et al., 2009; Otterå et al., 2010; Zanchettin et al., 2012; Swingedouw et al., 2015

- Yes, that's correct. We have included all the references you mentioned here.

L294: rephrase to „...which is within the range of natural variability“ or similar.

- Thank you very much for the suggestion. We modified the sentence to: "In contrast, the SOL, VOL and GHG simulations show only minor, non-statistically significant temperature anomalies, ranging from slightly negative to positive values below 0.5 K, which is within the range of natural variability."

L336-337: confusing sentence, please rephrase („results in theory in...“)

- Yes, indeed this sounds confusing. We changed the sentence to: "After a major volcanic eruption, this theoretically leads to lower atmospheric humidity and reduced precipitation on a global scale."

We greatly appreciate your support and hope that the final version fully meets your expectations and requirements.

Yours sincerely, on behalf of all co-authors

Eva Hartmann