

*We thank Anonymous Reviewer 1 and Jim Haywood for their kind words and suggestions/comments throughout the process, which improved the manuscript. Both points for technical corrections have been considered:*

J.H.: 1) Regarding the CALIOP overpass comment:-

Yes, we are aware of this intersection. With the following Figure it becomes clear that CALIOP did not intersect the bulk of the cloud seen from HIMAWARI, but rather a very thin tail. Therefore, we believe the CALIOP observations not to be of sufficient value for this study.

To my mind, this is a little dismissive. If you are aware of the overpass, then you should state this as it would take only a little modification to the text to signpost this overpass. I suggest:-

“With the exception of an overpass at around 49N that intersected only a narrow tail of the volcanic plume at around 16-17km altitude, there are no CALIOP intersections of the core plume during the early stage.”

*Yes, you are right. We have added this sentence.*

J.H.: 2) I am glad that the authors took up the suggestion of adding the global AOD in their Figure 8. However, this does highlight some of the bulk difference between the WACCM model and the observations in terms of the global mean AOD. The background (peak – pre-eruption) for WACCM appears to be 0.025 – 0.0075 (0.00175) while for the OMPS observations we have 0.0125 – 0.005 (0.0075). Generally, the authors do a good job of discussing the limitations of making a like-like comparison between the observations and the modelling (lines 352-375), but it is easy to miss the fact that the background-peak values differ by a factor of ~2.3 in the initial phase. The authors should consider whether they should state this implicitly in the text somewhere around line 352.

*True, we haven't given a qualitative comparison like this so far. You will find a sentence like this now around line 466, after introducing Figure 8 and A5.*