
The authors have thoroughly revised their manuscript considering mostly all of the comments raised. I have one small remaining concern about the calculated mass ratio.

I read through the manuscript, and have the following comment which need to be addressed in the final manuscript.

In the revised manuscript, the authors have used aerosols in a size range up to 850 nm for the calculation of the $R_{tot}$ factor. In the firstly submitted manuscript, aerosols in a size range up to 320 nm were used for the calculation of the $R_{tot}$ factor. The authors mentioned in their revision “The resulting total masses are considerably higher and, thus, the resulting R values are much smaller.” and “Scenarios where this ratio exceeds $R_{tot} \sim 0.5$ are the most likely ones where clouds can significantly change aerosol parameters.”. The value in the firstly submitted version was $R_{tot} \sim 2$. So, the applied aerosol size range for the calculation affects significantly the $R_{tot}$ values which are used to predict a chemical cloud-processing signature in selected air masses. Therefore, I guess it should be clearly stated in the revised manuscript that for the calculation of $R_{tot}$ values only aerosols in a size range up to 850 nm (PM 0.85) should be used. If aerosols with a different size range are used the resulting $R_{tot}$ values could be smaller or higher. Thus, a comparison with the proposed value of $R_{tot} (\sim 0.5)$, provided in the present study, could be misleading.