Review of "Is there an aerosol signature of cloud processing? " by Ervens et al. (2018)

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} ~ 0.5 are the most likely ones where clouds can significantly change aerosol parameters.". The value in the firstly submitted version was R_{tot} ~ 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} (~ 0.5), provided in the present study, could be misleading.

Response: We appreciate the reviewer's comment and agree with this caveat on the use of R. We ded the following text to the manuscript:

Abstract: It should be noted that the absolute value of R_{tot} depends on the considered size range of particles.

At the end of Section 3.1.4: In the experiments described by Wagner et al. (2015) and Wonaschuetz et al. (2012) similar particle size ranges (< 50 nm up to 800 nm) were measured. If a narrower range of particle sizes were taken into account (e.g., only SMPS data up to D = 316 nm, cf Section 2.1.1), the denominator in Equation-1 will be smaller and consequently the resulting R larger. Thus, by comparing R values from different experiments, it should be made sure that measurements of similar particle size ranges are considered.

In the conclusions: It should be cautioned that only measurements of similar particle size ranges should be compared since this range will determine the initial aerosol mass that is used in the calculation of R.