

Interactive comment on “Impact of in-cloud aqueous processes on the chemical compositions and morphology of individual atmospheric aerosols” by Yuzhen Fu et al.

Anonymous Referee #1

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In this paper, the authors did a good job of presenting their results on the different morphologies and mixing states of activated and interstitial particles. I think that the analysis could be strengthened by further exploring the connection between the offline TEM-EDS analysis and the online SPAMS analysis. As Prof. Surratt mentioned, it has been previously shown that SOA can form via in-cloud processes and the formation of SOA can result in core-shell phase morphology. As such, it would be beneficial to assess the SPAMS mass spectra for SOA products, especially given the increase in the number fraction of S-OM relative to S-rich particles in the RES v. INT particles. Additionally, the size distribution of different particle morphologies and mixing states could be assessed and compared to the size-resolved mass spectra from the SPAMS.

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Additionally, I would recommend that the authors include the EDS spectra that correspond to the TEM images presented in Figure 3. In the SI, to clarify the difference between figures S1 and S3, I would recommend that the authors change the title of S1 to indicate that the fraction types correspond to EDS.

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