

Reply to Referee 3

We are deeply grateful for the referee's comments on our paper. Following your comments, we revised the manuscript. Our responses to your comments are as follows. Lines are those in the revised version.

1. *The authors have addressed most of my comments appropriately. I have an additional suggestion (not critical for the acceptance of the paper). The authors can also refer to the following recently appeared JAS article: "Impact of entrainment-mixing and turbulent fluctuations on droplet size distributions in a cumulus cloud: An investigation using Lagrangian microphysics with a sub-grid- scale model" by Chandrakar et al. JAS (2021). They used a similar subgrid model as Abade et al. (2018) but with a Wiener diffusion term to make the stochastic differential equation consistent with the drift-diffusion model and produce correct fluctuation magnitude and variability.*

Thank you very much for suggesting the reference (Chandrakar et al. JAS 2021). This paper was published just recently and we did not know it. We made the following revisions and cited the paper.

- Line 139: The phrase "*it would be possible*" has been replaced by "*it is possible*".
- Line 140: The sentence "*For the Langevin model including such terms, readers are referred to Paoli and Shariff (2009) and Sardina et al. (2015).*" has been replaced by "*Readers are referred to Paoli and Shariff (2009); Sardina et al. (2015) for the Langevin model including such terms, and also to Chandrakar et al. (2021) which implemented such a Langevin model into the LES Lagrangian cloud model and investigated the impact of entrainment-mixing and turbulent fluctuations on droplet size distributions in a cumulus cloud.*".
- Line 144: A sentence "*This extension is left for future work.*" has been removed.

We again appreciate the referee's valuable comments which are very constructive to make the paper clearer and better.