Review

Title: **Influences of Entrainment-Mixing** 1 **Parameterization on Numerical Simulations of Cumulus and Stratocumulus Clouds**

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Summary

The authors provided a new method for entrainment-mixing parametrization in the LES model. This scheme uses the grid mean RH and can be applied directly in microphysics schemes in the models. They have tested their method in LES version of WRF-Solar simulation for cumulus and stratocumulus clouds. Also, they have conducted the experiments for the sensitivity analysis for different turbulent dissipation rate and aerosol number concentrations.

This study provides a good method for parametrization. However, before publication in ACP, the authors have to clarify few questions provided below.

Comments.

Major:

The new scheme is based on the parameters α and the ψ. However, ψ depends on S_e (sub saturation of entrained air) which was taken from another model EMPM. My main question is how this new approximated value of Se is validated? It seems that you are taking a parameter from one model and improving another model. It should be validated by some observation or any other reliable source.

In addition, the model results presented in this study should be validated using observation data or a well-established theory.