

Interactive comment on “Size-dependence in chord characteristics from simulated and observed continental shallow cumulus” by Philipp J. Griewank et al.

Anonymous Referee #2

Received and published: 2 June 2020

This paper compares the cloud size (chord length), under-cloud vertical velocity and moisture anomalies observed and simulated by large-eddy simulation models at ARM SGP and analyzes the cloud size dependence of vertical velocity and moisture anomalies. I think the methodology is sound and the presentation is mostly clear. I suggest minor revision. Here are my comments,

1. Please make the English more readable in terms of both grammar and style.
2. I don't quite understand Section 7 and the last bullet point in the conclusion (Sect. 8.2). How is the "30 days" conclusion reached? Also, "The line presenting the DL chords roughly lies within the $n = 64$ shading, at least 64 columns are needed for ruling

C1

out sampling being the cause for the difference between observations and simulations." Why?

3. Did Endo et al. (2019) use a methodology more similar to the 1D or 3D method in this paper? Do you see a change in the PDF shape from 1D to 3D method? Since Endo et al. (2019) is so recent and relevant, I suggest more discussions comparing your results to theirs.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-338>, 2020.

C2