

Responses to the reviewers

Importance of aerosols and shape of the cloud droplet size distribution for convective clouds and precipitation

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We thank the reviewer for reading the revised manuscript again.

Reviewer 1

Thank you to the authors for addressing my previous comments. My only concern still is the list of processes impacted by the shape parameter. Based on the response, I'm still worried that the list contains too many processes. Only those processes that are directly impacted through use of the shape parameter in the calculation of the instantaneous process rate should be included. The authors state that evaporation is definitely impacted, but the way the response was worded, I can't tell if it is a direct impact or an indirect impact. I can't find any documentation of cloud droplet evaporation in this scheme and so can't verify if it is a direct impact. All I ask is that the authors check the code for all processes listed to make sure that the droplet shape parameter is actually used and make any changes if necessary. Otherwise the paper can be published in its present form.

We have rephrased the list of processes which are influenced by the shape parameter as suggested, the sentence now reads:

“The size distribution of the cloud droplets has a substantial impact on the simulation results, as various microphysical processes depend either directly on the shape parameter (e.g. autoconversion, self collection) or indirectly (e.g. accretion, sedimentation, evaporation, riming, melting).”