

Interactive comment on “Experimental quantification of contact freezing in an electrodynamic balance” by N. Hoffmann et al.

Anonymous Referee #2

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This paper discusses the experimental quantification of contact freezing using an electrodynamic balance. Contact freezing is one of the 4 heterogeneous freezing pathways in mixed-phase clouds. Contact freezing is the most challenging freezing pathway experimentally because it depends on the collision rate that needs to be determined as well. In this paper the authors study contact freezing by charging the droplet and the aerosol particle. They first compare collection efficiencies and then discuss contact freezing. The paper is well written, the method is sound and the results are novel. Thus I recommend this paper for publication after the following comments have been taken into account:

Major comments:

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I'm missing that the authors compare their results to earlier results of contact freezing. This is crucial to put your results into perspective and to compare different methods of studying contact freezing. Please add that.

p.3422: Why do you only investigate a rather narrow temperature range between 237.9K and 240.3K? I recommend extending that so that the onset freezing temperatures can be seen as well

Minor comments:

p.3413, line 27: PSL is used here for the first time but explained further back, please change that.

p. 3415/3421: How is the introduction of PSL spheres biasing your collection efficiency results? Couldn't you obtain collection efficiency results without adding PSL spheres given that they cause problems for the PSL experiments? And if so, how do the results differ?

p.3423, line 1: Reference missing

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 3407, 2013.

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