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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Sensitivity studies of different aerosol indirect effects in mixed-phase clouds" *by* U. Lohmann and C. Hoose

Anonymous Referee #2

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This manuscript investigates the relative importance of glaciation versus de-activation effects in mixed phase clouds due to anthropogenic activity. Several different simulations schemes are tested and results are compared to available field data. The results suggest that the studied phenomena might potentially have a large effect on the aerosol indirect effect and radiative forcing. The topic is important and well within the scope of ACP. I recommend publications after the authors have addressed the following minor issues:

1) I would like to see some additional discussion on how well do the authors think their results are constrained - i.e. how well, for instance, the microphysics of the BF processes are known. This would be particularly important since the maximum radiative forcing effect that the authors come up with is so large. It would be helpful for the

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reader to know how "certain" do the authors think the results are.

2) The authors discuss a little the need for additional field measurements, but it would be very interesting to read a little bit of what authors think about potential lab measurements that would help narrowing down the uncertainties related to the studied issues.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 15045, 2009.