



Supplement of

Sensitivity of mixed-phase moderately deep convective clouds to parameterizations of ice formation – an ensemble perspective

Annette K. Miltenberger and Paul R. Field

Correspondence to: Annette K. Miltenberger (amiltenb@uni-mainz.de)

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Figure S1. Temporal evolution of the precipitation rate as derived from radar observation (orange line) and simulated in the initial condition ensemble (grey shading) as well as different sensitivity experiments (coloured lines, see legend).



Figure S2. Time-average profiles of 95^{th} percentile of thee in-cloud number concentrations of (a) cloud droplets, (b) rain drops, (c) ice crystals, (d) snow and (e) graupel. Data is available every 10 min Different coloured lines show the profiles from simulations with different heterogeneous freezing parameterisations, different INP number concentrations, without a parameterisation of the Hallet-Mossop process and with warm cloud microphysics only (colours according to legend). The 0 °C level is located at about 2.6 km altitude.



Figure S3. Instantaneous precipitation rate at 14 UTC in the different members of the initial condition ensemble. The tenth ensemble member is identical to the baseline simulation of the present study and is shown if Fig. 3 a.



Figure S4. (Precipitation rate distribution (excluding non-raining grid-points) with a focus on high precipitation rates. The left set of vertical lines shows the 95^{th} percentile and the set of lines to the right the 99^{th} percentile