



Model simulations with COSMO-SPECS: Real-case studies of mixed-phase clouds

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The coupled model system COSMO-SPECS consists of the numerical weather prediction model COSMO and a spectral bin microphysical scheme for aerosol particles as well as for liquid and frozen hydrometeors. Up to now COSMO-SPECS was used for idealized case studies such as convective heat bubbles or stratiform clouds in a LES-like setup using horizontally periodic boundary conditions as well as homogeneous conditions with respect to the particle population.

Meanwhile, growing computational resources allow for longer runs on larger integration areas making real-case studies feasible. For real case studies, time-dependent boundary conditions provided by either larger-scale models or reanalysis data have to be used. This raises the problem that the hydrometeor fields (cloud and rain drops, cloud ice, snow, ...) are given as bulk data. Therefore, these data fields have to be adapted to the spectral bin microphysics description in COSMO-SPECS in order to correctly restrict and drive the hydrometeor fields.

We will present first results of the model studies.