High Definition Clouds and Precipitation for Climate Prediction – PDF cloud schemes

This request is for the contribution of the University of Leipzig to the BMBF-funded project "High Definition Clouds and Precipitation for Climate Prediction" (HD(CP)²), specifically for the contribution to the sub-project S6 "HD(CP)² PDF cloud schemes". HD(CP)² aims at performing cloud-resolving simulations at the scale of Germany for a full season, and at collecting and processing observational datasets, for the evaluation, development and improvement of cloud parameterisations in general circulation models. The task of sub-project S6, led by University of Leipzig, is the assessment of cloud parameterisations based on probability density distributions (PDFs). The reference model- and observational data will be exploited to assess existing schemes and improve these or develop new ones.

To this end, the existing three different parameterisations in the ECHAM6 and ICON atmospheric general circulation models (Sundqvist et al., 1989; Tompkins, 2002; Neggers, 2009) will be assessed for the region of Central Europe.