



Impact of subgrid-scale cloud feedbacks to radiation in a regional climatic simulation over Europe.

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Convection and associated cloudiness influence radiation budgets and dynamics of the atmosphere through feedbacks. In this work we use this feedback process incorporated into a convective parameterization and a radiation scheme in the Weather Research and Forecasting model (WRF 3.6.1) in a 5-year (1990-1994) regional climate simulation covering Europe. We compare results to a control run, which is identical without the feedback process and discuss the differences in the fields of temperature, precipitation, short- and longwave radiation and cloudiness. Both simulations are evaluated for temperature and precipitation using EOBS data, as well as radiation at the surface and cloud fraction using Satellite Application Facilities for Climate Monitoring (CMSAF) data. The simulations are performed with the Weather Research and Forecasting model (WRF 3.6.1) with 0.44° spatial resolution. The EGI and HellasGrid infrastructures were used for the regional climate simulations.