



## **The impact of soil moisture initialisation on regional climate simulations**

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In the past, the initialisation of the soil moisture (and also soil temperature) profile has not been given much attention. However, it is very important because a wrong initialisation causes wrong latent and sensible heat fluxes and leads to wrong temperature and precipitation forecasts. Usually, the initial water content is taken from the driving model which has a coarser resolution and often less soil layers and other soil types than the regional model. Therefore the soil moisture profile in the regional model may differ considerably from a realistic profile. For climate simulations at medium time scales, that is not so important because the model is given some time for adaptation. But for long time scales, for shorter forecasts and for statistical dynamical simulations, such an initialisation may induce large errors, besides being a waste of computation time.

For the climate version (CLM) of the Local Model of the German Weather Service we therefore tried to produce soil moisture profiles for the initialisation day with a stand alone-version of the soil model. We start the soil model some years before the initialisation day and use ERA40 reanalysis data as driving data, together with a soil type and land use inventory. The computational effort is much smaller than to compute the period with the whole atmospheric part of the CLM and we get realistic soil moisture profiles for the initialisation day in a reasonable time. The soil model is driven with the same soil types and soil levels as we use in the CLM simulations.

In the presentation we will show simulations for the year 2001 for South West Germany with the old and new soil moisture initialisation. The differences between the soil moisture profile of the driving data and the profile produced with our stand-alone-version will be shown and we will present the influence of the new soil moisture pro-

file on the atmospheric parameters like 2m-temperature, precipitation and evaporation. The simulations will be compared to measurements. A closer look will be given on the influence of soil moisture profile on convective precipitation.