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Coupling COSMO-CLM model with WaSiM and GEOtop hydrology models

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The contribution considers one way coupling of the COSMO-CLM (CCLM) regional climate model with the distributed hydrology models WaSiM-ETH and GEOtop. In the coupled system CCLM interacts with several instances of the hydrology model, which are running in parallel with different settings and an optional bias correction routine. COSMO-CLM operates at resolution of 1 km and in convection permitting mode. The resolution of the applied hydrology models is 90 m with Geotop and 100 m with WaSiM. The system utilizes the OpenPALM model coupler.
Experiments with the coupled system are performed in the catchment of the rivers Ammer and Rott located in the Bavarian Ammergau Alps and alpine forelands. Ammer and Rott are a parts of the “preAlpine” long term observatory TERENO which provides wide range on environmental observational data required in the model development and evaluation.
The contribution discusses the general issues of hydrological simulations driven with biased NWP/RCM data input. Then it presents the coupled system, its advantages and limitations, and the evaluation of obtained hydrology and energy fluxes in comparison with measurements from river gauges and EC stations in the Ammer and Rott catchments.