



Streamflow data assimilation for root zone soil moisture analysis

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The soil moisture in the root zone influences the latent heat flux and therefore quantity and spatial distribution of atmospheric water vapour and precipitation. Hence the knowledge of the soil moisture distribution is not only a crucial task but also a challenge in numerical weather prediction.

The Ensemble Kalman Filter (EnKF) is set up to assimilate streamflow observations into the multi-layer land surface model TERRA-ML of the regional weather forecast model COSMO. An experiment in the Enz river catchment located at the downwind side of the northern Black Forest illustrates the potential of streamflow data assimilation and its spatial and temporal requirements for an automated river gauging network.