



Verification of ensemble precipitation forecasts for hydrological modelling in the Czech Republic

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Precipitation forecast has great significance for hydrological forecast, particularly in the case of issuing flood alerts. Spatio-temporal distribution of precipitation has influence on runoff depths, especially in small basins. Presented verification study is based on comparison of ensemble precipitation forecast and deterministic forecast with observed rainfall derived as a combination of rain gauges and radar based data. To determine behavior and the levels of dependency between available model forecasts, verification methods that are appropriate for precipitation evaluation are used.

The study aims at assessment of two short range precipitation forecasting approaches, spatially related to small basin in the Czech Republic with distinct orography. First verified approach is presented by deterministic forecast of model ALADIN-CZ with horizontal resolution 4.7 km. Second approach is based on an ensemble forecast system ALADIN-LAEF with horizontal resolution 18 km. The results show that the ensemble forecast provides more reliable boundary conditions for hydrological models compared to the deterministic forecast. Moreover, against the deterministic forecast, the ensemble averaging decreases initial condition uncertainty in the case of extreme rainfall events.