



The use of radar in hydrological modelling in the Czech Republic – case studies of flash floods

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The modernization of the Czech weather radar network in late nineties resulted in considerable enhancement of the utilization of the radar precipitation estimates in the Czech Hydrometeorological Institute. Since 2003 the hydrologists and meteorologists have available four types of areal precipitation estimates: The original radar estimate made from reflectivity in (pseudo)CAPPI 2km, radar estimate adjusted by mean field bias (adjustment factor), raingauge-only estimate and combined estimate computed by double optimum estimation method. The radar-raingauge combined estimate is routinely used as an alternative precipitation input for hydrological models applied on several catchments in the Czech Republic. Nevertheless, the same data format allows for utilization of any of the estimates (radar, adjusted radar, gauge-only, combination).

The hydrological model Hydrog was also used for investigation of two flash floods that took place in the Czech Republic in 2002 and 2003. The precipitation input consisted of mean-field-bias-adjusted radar estimate along with quantitative precipitation nowcasts up to 2 hours based on COTREC method (extrapolation). Taking into account all the limited predictability of the severe convection development and the errors of the radar-based precipitation estimates, the aim of the simulations was to find out to what extend the hydrometeorological prediction system was able to forecast a flash flood and to simulate the event. The contribution will present the details of the results.