

Quantitative expression of uncertainty in nowcasting heavy convective precipitation in Central Europe by extrapolation methods

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Methods extrapolating observed radar reflectivity along Lagrangian trajectories are frequently used for nowcasting of precipitation. The forecast errors of these methods have two basic components. The first one stems from inaccurate estimates of the motion fields used for calculating trajectories. The second one follows from the assumption that is frequently applied and that consists in an assumption that observed radar reflectivity does not change in another way than by the advection. Some research of these aspects has already been done but it concentrated to another regions than to Central Europe. Because scale characteristics of convective storms differ for various parts of the world we think that such study can bring original results.

The aim of this study is to quantify these two errors and then quantify predictability and uncertainty in forecasting convective precipitation. We will analyze heavy convective storms which occurred in the Czech Republic in 2009 and 2010 by means of several extrapolation methods. The main attention will be devoted to analyses of forecasted and observed accumulated precipitation, in contrast to usually analyzed forecasted reflectivity, over 60 and 30 minutes. We will concentrate on error analyses of precipitation forecasts for „typical“ Czech small catchments, the size of which is from 100 to 200 km².