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Abstract

A new method for the probabilistic nowcasting of instantaneous rain rates (ENS) based on the ensemble technique and extrapolation along Lagrangian trajectories of current radar reflectivity is presented. Assuming inaccurate forecasts of the trajectories, an ensemble of precipitation forecasts is calculated and used to estimate the probability that rain rates will exceed a given threshold in a given grid point. Although the extrapolation neglects the growth and decay of precipitation, their impact on the probability forecast is taken into account by the calibration of forecasts using the reliability component of the Brier score (BS).

ENS forecasts the probability that the rain rates will exceed thresholds of 0.1, 1.0 and 3.0 mm/h in squares of 3 km by 3 km. The lead times were up to 60 min, and the forecast accuracy was measured by the BS. The ENS forecasts were compared with two other methods: combined method (COM) and

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