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Assimilation of extrapolated radar reflectivity into a NWP model and its impact on forecasts of convective precipitation

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A method assimilating observed and extrapolated radar reflectivity is presented. The method is focused on a nowcasting of heavy convective precipitation. The data are assimilated into the COSMO NWP model, which is integrated with a horizontal resolution of 2.8 km, and the extrapolation method is based on the COTREC algorithm. The aim of the combination of observed and extrapolated data is to utilize the fact that extrapolation techniques usually yield good forecasts for short lead times. The accuracy of hourly precipitation forecasts will be evaluated and compared with forecasts using only observed radar reflectivity. Current results show that the extrapolated data improve precipitation forecasts for the second and third lead hours. Convective precipitation is difficult to forecast in a deterministic way. Therefore the simulated forecasts will be used to estimate uncertainty of the forecast and its dependence on the lead time and horizontal scale.