Radar-based Precipitation Nowcast at Deutscher Wetterdienst (DWD)

Tanja Winterrath, Wolfgang Rosenow

Quantitative precipitation forecasting with high temporal and spatial resolution is essential for the meteorological warning management as well as for hydrological applications in the context of flood risk management. DWD operates a radar-based nowcast suite covering a lead time of two hours with an update frequency of 15 minutes focusing on high-resolution forecasts of precipitation quantity, aggregate state, and type. The predicted amounts of precipitation are quantified making use of the results of the latest gauge-adjustment. Combining the radar-based precipitation nowcasts with data from complementary observations and numerical modelling allows an estimation of the precipitation phase, while the concurrency of high reflectivity values in the radar signal and the occurrence of strong lightning intensity points to an enhanced probability of hail within a thunderstorm event.

Applications and Outlook

Radar-based precipitation forecasts are provided to the risk management authorities of the German federal states for application in flood forecasting. Within Deutscher Wetterdienst radar-based precipitation forecasts are part of the automatic system for the generation of weather warnings AutoWARN. The focus of future developments lies on the improvement of the real-time provision and visualization of combined analysis and forecast products for operational forecasting and warning.

References


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