

## **7.17 WEATHER RADAR DATA DRIVEN NEAR-GROUND PRECIPITATION TYPE ESTIMATION AT DEUTSCHER WETTERDIENST**

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The Deutscher Wetterdienst (DWD) operates a C-band weather radar network that is mainly equipped with dual-polarisation capability. The weather radar systems are well-established devices to analyse precipitation particles in the troposphere and therefore are taken to realise a hydrometeor classification based on the measured radar observables. But beside the advantage of an extensive coverage, the measurement geometry of weather radar, especially the antenna elevation angle and antenna beam shape, results in information that has a more or less distinct height difference to the surface in relation to the distance from the radar site. This means, those meteorological related values that are estimated with dual-polarisation weather radar measurements may differ in comparison to the meteorological condition near the ground. Nevertheless, the weather forecasting and warn management of the DWD as national weather service is strongly connected to surface based measurements and observations. For instance, the correct differentiation between snow and rain in the cold season is an important task. Because of this, the users requested a near-ground precipitation type estimation that ought to be driven by weather radar data based hydrometeor classification. To treat this issue, forecasted vertical profiles of temperature, humidity and pressure are taken from numerical weather prediction model which serve additional input.

In this study, a rough overview to the possibilities for an extrapolation of the hydrometeor classes from the height of the radar measurement to the precipitation type at 2 m above the ground is given. Hereby, the focus is laid on the transition from snow to rain as a typical application for the cold season. First impressions will be presented by case studies from last winter in Germany. So far, the presented results encourages for further development in this topic.