Hydrometeor Classification for the DWD Weather Radar Network: First Verification Results

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Beside the running replacement of the German weather radar network with C-Band dual-polarization radar systems, the creation of a software framework called POLARA has started in 2010. POLARA was established to support the implementation of a runtime environment for the near real-time operation of radar data related procedures. Therein, beside other algorithms like methods for quality assurance of the radar data or quantitative precipitation estimation, a hydrometeor classification scheme (Hymec) was developed.

In this study, the processing and especially the results of the hydrometeor classification plays a major role. Furthermore the focus is laid on the verification of the derived Hymec products. For this, the comparison with measurements by single point ground based devices as a state-of-the-art technique is applied. Here the results of so called laser precipitation monitors (LPM) are used, because they deliver, beside the synoptic information like precipitation rate or temperature, also a time-series of the major hydrometeor type at the device site. Two problems joined the game by addressing this comparison or the verification in general. On the one hand the advantage that the PPI scan geometry covers a wide area by the radar measurements stays in contrast to a limited available number of LPM devices. On the other hand the hydrometeor classification is directly done on the radar data and therewith copies the designated radar scan geometry. So an exceeding distance to the radar site leads to a higher locus of the Hymec classification result which complicates a direct comparison to the ground based LPM hydrometeor class. Apart from the mentioned difficulties, first verification results will be presented in this paper.