Quantitative Precipitation Estimation for the Polarimetric DWD Weather Radar Network

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Along with the replacement of the C-Band Doppler weather radar systems with polarimetric C-Band Doppler weather radar systems within the operational radar network of the Deutscher Wetterdienst (DWD) it was envisaged to improve existing algorithms and to develop new algorithms using the polarimetric weather radar measurements.

As a consequence the DWD has originated the Project Radarmaßnahmen (2010-2014) with the aim to operationally use the capabilities of the newly available polarimetric weather radar measurements. The main goals of the project are to establish a quality control starting at the radar sites, to develop a hydrometeor classification scheme and to improve the quantitative precipitation estimation (QPE). Furthermore, the aforementioned algorithms should be implemented within a common software framework (POLARA - polarimetric radar algorithms).

This contribution provides insight into the QPE for the polarimetric DWD weather radar network resulting from the Project Radarmaßnahmen. The realisation of the QPE within the POLARA algorithm chain QualityHyPE will be presented and discussed in detail. The solution proposed for the QPE incorporates the utilisation of the results from the preceding quality assurance in terms of using quality controlled and, if possible, corrected polarimetric measurements and the results from the hydrometeor classification in terms of applying a suitable algorithm for the estimated hydrometeor class. The contribution will be finalised by presenting first results from the ongoing verification.