

### **3.18 RADAR NETWORK, PRODUCTS AND PERSPECTIVES AT DEUTSCHER WETTERDIENST**

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Radar data and derived products play an important role in weather forecast and warn management. From 2011 to 2015 DWD has replaced the radar network with modern dual-polarization systems successively. Currently DWD operates a network of 16 C-Band dual polarimetric Doppler radars and one single polarimetric Doppler radar evenly distributed over Germany. The actual scan strategy enables spatial and temporal resolved 3D measurements every 5 min.

A comprehensive process chain in the software framework POLARA includes diverse algorithms for quality control, composite generation, creation of different products and offers the possibility for new developments or extension of existing algorithms. The dual-polarization measurements allow the derivation of new products like hydrometeor classification or an improved quantitative precipitation estimation. Several algorithms are used, which detect convective precipitation cells in 2D (e.g., KONRAD) and 3D radar data, such as a mesocyclone detection algorithm and the 3D cell detection (KONRAD3D, currently under development). The shift of radar products is realised on the basis of motion vectors derived from the motion in previous data.

The main focus in further development is an improved nowcasting for both convective and winter events. Especially the temporal development in precipitation events is taken into account. The complex three dimensional structure of precipitating clouds requires the use of parameters which best describe the cloud characteristics. New possibilities arise with 3D volume scans with 5-min intervals and the dual-polarisation technology as well as the combination with data from other sensors like satellites, lightning etc.

The presentation gives an overview about the actual status of the radar network, the algorithms and products as well as perspectives in further development.

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