Use of radar data in nowcast applications

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Nowcast applications are important components of the weather prediction in a time scale from analysis up to two hours. The nowcast timescale has gained importance worldwide over the last few years. The demand on information with high spatial and temporal resolution is increasing. Due to a growing information base i.a. from remote sensing techniques, this demand can be satisfied.

The German Weather Service (DWD) monitors the weather situation with a network of 17 radars, that are covering >99% of Germany. In 2011 the DWD has started to replace successively all radars by polarimetric radars, which can provide precipitation intensity and phase information.

Besides providing radar data output like reflectivity and precipitation data, radar data is used in different nowcast applications. Combination of radar data sets with other data sets (i.a. lightning, satellite data, wind) in nowcast applications provide severe weather forecasts e.g. thunderstorms or icy conditions. Furthermore radar composites serve as input for radar tracking algorithms which provide nowcasts for the next two hours.

The contribution will present the connection between radar data sets and their use in different nowcast applications of the DWD for different application areas in weather and flood forecasting.