

	> 0.1 mm	> 0.5 mm	> 1 mm	> 2 mm	> 3 mm	> 4 mm	> 5 mm
<i>R</i>	0.75	0.67	0.61	0.51	0.42	0.36	0.26
<i>RMSE</i>	0.34	0.84	1.47	2.41	3.14	3.80	4.49
<i>MAPE</i>	0.36	0.38	0.44	0.44	0.45	0.47	0.51

Table 1: Evaluation of regression metrics for imputation of 10 minutes gaps. Columns refer to evaluating the metric on subsets of precipitation events, where more than 0.1 mm, 0.5 mm, 1 mm, 2 mm, 3 mm, 4 mm and 5 mm of rainfall was observed.

(2)	> 0.1 mm	> 0.5 mm	> 1 mm	> 2 mm	> 3 mm	> 4 mm	> 5 mm
<i>R</i>	0.71	0.64	0.60	0.51	0.42	0.35	0.25
<i>RMSE</i>	0.37	0.89	1.55	2.5	3.23	3.89	4.56
<i>MAPE</i>	0.44	0.45	0.51	0.48	0.47	0.48	0.52

Table 2: Evaluation of regression metrics for imputation of 30 minutes gaps. Columns refer to evaluating the metric on subsets of precipitation events, where more than 0.1 mm, 0.5 mm, 1 mm, 2 mm, 3 mm, 4 mm and 5 mm of rainfall was observed.

<i>Characteristic</i>	<i>Description</i>
Radar Network	17 operational DWD dual-polarisation Doppler weather radars. Since 2021, all radars in the network operate as dual-polarisation systems.
Radar band	C-band systems, approximately 5.6–5.65 GHz, corresponding to a wavelength of about 5 cm.
Antenna / beamwidth	Parabolic antenna with a nominal antenna opening angle / effective beamwidth of approximately 1°. Beam broadening increases the sampled volume with range.
Native polar sampling	Approximately 1° azimuthal resolution and 250 m range-bin spacing for the precipitation scan. The 250 m resolution applies along the radar beam; the effective horizontal footprint increases with range.
Precipitation scan	Terrain-following plan-position indicator (PPI) scan repeated every 5 min. The scan uses azimuth-dependent elevation angles to follow the local orography and clear the local horizon as far as possible; lowest elevations are site- and azimuth-dependent and are locally increased where terrain blockage would otherwise occur.
Range	Maximum range of the precipitation scan is 150 km. The operational volume scan extends to 180 km.

Vertical scanning	In addition to the terrain-following precipitation scan, the operational 5 min cycle includes 10 fixed-elevation volume scans between 0.5° and 25° and a 90° birdbath/profiler scan.
QPECommon grid	National composite on a 1 km × 1 km grid. QPECommon is not gauge-adjusted and is therefore independent of the DWD rain gauges used as regression targets.
Known residual limitations	Remaining uncertainty may arise from increasing beam height and beam broadening with range, partial terrain blockage, C-band attenuation in intense rainfall, non-meteorological echoes, bright-band effects, hydrometeor-dependent Z–R uncertainty, and radar–gauge representativeness differences.

Table 3