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Analysis of the uncertainty of quantitative precipitation estimates of the Meteorological Service of Catalonia weather radar network

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In order to quantify the uncertainty of radar-derived point quantitative precipitation estimates (QPE), a comparison has been made with a network of raingauges. Three C-band Doppler radars and more than 340 telemetered gauges are used. Both networks cover the area of Catalonia (NE Spain). One year of daily data has been analysed, considering different specific time periods and also complete rainfall events. For each individual radar, three different products are obtained: short-range, long-range, and corrected radar QPE. The corrected product is generated by the EHIMI system (Hydrometeorological Integrated Forecasting Tool). Additional products are considered for network composite QPE. The first part of the analysis has been centered in the uncertainty quantification for all precipitation products. Different rainfall thresholds and distance dependence have been considered, to obtain more detailed information. The second part has been the individual analysis of the uncertainty of each rain gauge, comparing with each rainfall radar product. The final objective of this study is to obtain a geographical distribution of the uncertainty for each radar QPE. These results will allow improving the knowledge about areas with underestimation and overestimation for every radar product. This will enhance the radar QPE over the area of interest benefiting a number of applications including verification of high resolution NWP precipitation forecasts.