

9.12 RADAR RAINFALL COMPOSITING: COMPARISON OF DIFFERENT METHODS

A. JURCZYK¹, J. SZTURC¹, K. OŚRÓDKA¹

¹ Institute of Meteorology and Water Management National Research Institute, Poland
anna.jurczyk

Most often employed technique for compositing of weather radar rainfall data is a maximum rainfall approach, however its disadvantage is that spurious echoes from all overlapping radar data are collected. The alternative solution is to use quality information (in form of quality index, QI) as a criterion for the data merging, which can be performed by taking: (i) data of maximum QI value, (ii) QI-weighted mean, (iii) QI-weighted mean from a limited number of data with the highest QIs. A main disadvantage of the QI-weighted mean version, which is underestimation of rainfall due to impact of data from far ranges, is partially minimised, although not completely, in the version with a limited number of data. The method proposed here employs, apart from the QI value, the distance from the radar site as the parameter which describes range-related errors as a key factor in underestimation of radar estimates at far ranges. Such merging is more efficient considering different aspects, especially such as weakening of non-meteorological echoes and smoothing borders between particular radars (which are visible applying the maximum QI version). The examples of different situations are presented to depict pro and contra of different QI-based approaches.