

A new approach for analysis and nowcasting of precipitation

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In objective spatial analysis, radar – raingauge merging algorithms usually try to take advantage of the strengths of both data sources: the higher quantitative accuracy of rain gauge data and the higher spatial coverage of radar data. There is a variety of algorithms in use which, in principle, differ mainly with respect to the way, the weighting of either data source is done (e.g., distance weighting schemes, geo-statistical approaches and others).

In the present work, different approaches for radar – raingauge merging are being tested and evaluated, and efforts are being made to use the local observation density as main input for weighting. First applications and evaluations over both a synthetical “truth” and a real analysis domain set up over the Austrian Alps showed good results which were comparable to or even better than existing algorithms. With such analysis on hand, optical flow is then being used for extrapolating the fields into the nowcasting range.

Based on various experiences made with already existing code, the present work aims at implementing a new algorithm that produces scientifically sound results on the one hand, but that also tries to avoid known problems of a system being used in an operation setting at a NWS. The system therefore puts much emphasis on traceability, flexibility and user-friendliness.