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RAINFUSION: A new method for combining radar and raingauge data

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Quantitative precipitation estimation is a crucial issue especially for predicting flash floods in the small catchments typical of the Mediterranean area. In Italy, Civil Protection has the duty of managing and generating reliable QPE products useful for warning and monitoring purposes in case of severe events over the Italian territory. To this end a dense network of raingauges (about 2000 stations with hourly timestep) is available together with a precipitation field obtained from the National Radar Composite. This work aims at considering and comparing different techniques available for operationally merge rainfall estimation from different sensors . In particular will be presented a comparison of the Modified Conditional Merging algorithm (presented at this conference by Pignone et al.) with a Bayesian procedure that exploits the radar quality maps available for two test sites of the Italian Radar Composite (Mt. Settepani and Il Monte).
The aim of this work is twofold, from one side is to test the Bayesian algorithm, its robustness and applicability in an operational context, and, on the other side, to define the best procedure for comparing and evaluating different data merging algorithms potentially useful for Civil Protection applications.