



Precipitation estimation by radar: introducing a probabilistic approach using ensembles. Potential application to GPM validation

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The quality of precipitation estimates by radar has advanced considerably in the last 10 years, and nowadays their use in quantitative applications, as the hydrological applications, is finally seeing as one of the most promising possibilities of the next years. In this context the need of developing methodologies to associate maps of uncertainties to these estimates (taking into account the variability of the sources of error in time and space) is a crucial issue. And not just to be able to provide plausible estimates of the measurement uncertainties to hydrological models, but also to make possible the developments of new concepts as meaningful 3D regional composites and providing adapted tools for the validation of precipitation estimates from satellites. To do it a new insight is needed to introduce the concept of probabilistic estimation and forecasting. A methodological approach to use a radar ensemble generation technique is presented and some examples of its application to illustrate the concept of probabilistic precipitation estimation and forecasting are presented. Its potential interest to enhance the validation program for GPM is finally discussed.