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# Ensemble radar precipitation estimation in a mountainous region

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An elegant way to express the uncertainty in radar precipitation estimates is the generation of an ensemble of radar precipitation fields using stochastic simulation and knowledge on errors. The issue of uncertainty is of particular importance in a region such as Switzerland with severe radar beam blockage and strong clutter from mountain returns. This paper presents progress in radar precipitation estimation at MeteoSwiss and first attempts to generate ensemble observations.

A 9-year comparison between real-time radar precipitation estimates and ground observations of a high-resolution gauge network reveals large improvements achieved by modifications during the past decade. Particular attention was paid to the definition of a set of meaningful and robust descriptors of uncertainty.

The detailed knowledge on uncertainty in radar estimates is input to a prototype generator of ensemble radar precipitation fields. The space-time error covariance, which is an important ingredient, is obtained from a large-sample radar-gauge comparison.