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A combined ETKF/breeding assimilation system

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Quantitative precipitation forecasts (QPF) with a lead time of synoptic time scales of 3-5 days are intrinsically probabilistic. The only feasible method for predicting estimates of the underlying probability density function of precipitation amount are ensemble simulations.

Therefore an ensemble forecasting system is build incorporating new techniques and approaches. Essential are the enhancement of the Ensemble Kalman Filter incorporating additional dynamical information from other sources than observations by the application of the breeding technique and the usage of a hybrid 3DVAR/ETKF system which is superior to either a purely ETKF or 3DVAR system.