Local Ensemble Transform Kalman Filter (LETKF) for the convection-permitting NWP model COSMO-DE

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We report on recent experiments with the Local Ensemble Transform Kalman Filter (LETKF) [1], which is being developed and tested for the operational regional model COSMO-DE of DWD (German weather service) and its ensemble version COSMO-DE-EPS. We describe the setup of the COSMO-LETKF, including the use of ensemble lateral boundary conditions. These are produced by the global model GME, which is also driven by a LETKF.

The use of high-density data such as radar radial winds [2] and the consequences for the choice of the localization radius are discussed. One possible approach is to use different observation types in several successive analysis steps (multi-step analysis). We also report on our experience with (adaptive) methods to increase the ensemble spread and to estimate the observation error [3,4].

References

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