***Observation Impact in a Localized Ensemble Transform Kalman Filter***

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The impact of observations on forecast quality is in many aspects an interesting quantity: It not only indicates, which observation types could be given more weight in the assimilation algorithm but also helps in tuning observation operators and in the planning of further investments in the observation system. However, the direct computation of observation impact in a assimilation and forecasting system is computationally expensive and therefore not feasible in an operational environment. To address this issue, different approximations have been suggested recently. This talk discusses the mathematical challenges of estimating observation impact and shows first results of assessing it in the localized ensemble transform Kalman filter for the regional weather forecasting model (COSMO-DE) of German Weather Service.