

TOWARDS ANALYSIS OF LOCALIZED ENSEMBLE KALMAN-BUCY FILTERS FOR CONVECTION  
DOMINATED MODELS AND SPARSE OBSERVATIONS

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With large scale availability of precise real time data, their incorporation into physically based predictive models, became increasingly important. This procedure of combining the prediction and observation is called data assimilation. A quite popular family of algorithms for this task are the ensemble variants of the Kalman filter.

In this work, we consider application and analysis of the localized ensemble Kalman-Bucy filter to (non-linear) models from space weather and fluid dynamics. In both cases, the analytical model state space is high or infinite dimensional, but only sparse observations are available. Therefore, a localized covariance operator, will be crucial in practice as well as for the analysis of a priori estimates on the empirical mean in the finite particle approximation.

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