



Model error estimation employing ensemble data assimilation

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A model error estimation approach based on ensemble data assimilation and state augmentation is presented. The approach is designed to estimate model error (bias) and to calculate uncertainty of the model error estimate. The uncertainty is obtained in terms of augmented analysis and forecast error covariance matrix, updated in each data assimilation cycle. The model error estimation approach is examined in application to a simple one-dimensional model and to a complex 3-dimensional atmospheric model. Sensitivity of data assimilation results to model errors will be discussed. The augmented analysis and forecast error covariance matrix will be examined in more detail.