ABSTRACT

TITLE: Estimating Model Error Using Observation Residuals

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This presentation discusses an approach to estimate model error using observation residuals. Based on the sequential fixed-lag smoother, we introduce a diagnostic procedure to allow estimating model error over a dense observing system. Optimality considerations are examined in light of the sequential results. The procedure is re-interpreted in the language of variational assimilation, such as 4d-Var. Illustrations of the approach are given by studying both identical-twin and fraternal-twin experimental settings for a system governed by Lorenz-type dynamics. Preliminary results by looking at observation residual statistics for the ECMWF data assimilation system are also shown.

The presentation will be part of a series of discussions on issues related to four-dimensional data assimilation under weak-constraint and methodologies to estimate model error.