

Abstract Submitted
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EnVO: a hybrid ensemble/variational adaptive observation algorithm DAVID ZHANG, THOMAS BEWLEY, UCSD — Advances in autonomous technology enable the development of Adaptive Observation (AO) strategies, which identify future sensor locations to reduce forecast error. The approaches to AO strategies are mainly divided into two techniques, the “uncertainty” based techniques such as the Ensemble Transform Kalman Filter by Bishop et al. 2001 and the “sensitivity” based techniques such as the Singular Vector by Palmer et al. 1998. Both approaches have their advantages and disadvantages; hence the combination of both is perhaps ideal. We propose a hybrid ensemble/adjoint AO technique, dubbed Ensemble Variational Observation (EnVO). The EnVO technique uses *both* sensitivity and uncertainty information, and can be applied in such a way as to ensure its optimized sensor trajectories are both feasible and efficient over the time window between the present and forecast time. Integrated statistic results indicates EnVO is able to consistently identifies target sites that produce lower forecast errors.

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