



## **Alternate Approaches to Data Assimilation**

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Markov random fields and Gaussian process models offer an alternative to Ensemble Kalman filters for data assimilation in complex systems. These methods capture prior assumptions about spatial and temporal relationships by using Gaussian distributions with cleverly chosen dependence structures. The assumptions are combined with observed data and computer model runs to estimate the state of the system. We will present comparisons using the Lorenz 96 model under varying spatial and time restrictions on the observations and discuss implications for data assimilation in ocean modeling.