Outline of presentations

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Inverse problem

- Combining observations and dynamics
- Stochastic variables
- Inverse formulation

Kalman Filtering

- Sequential data assimilation

- Kalman Filter (KF)

- Extended Kalman Filter (EKF)

Bayesian statistics

- Introduction

- Bayes theorem

- Relation to inverse formulation

Ensemble Kalman Filter

- Derivation of method

- Relation to standard Kalman Filter

- Application with linear and nonlinear dynamics

- Examples

Ocean applications

- State estimation in large scale ocean models
- Operational systems
- High dimensions and lots of data
- Highly nonlinear
- Examples

Parameter and state estimation

- Combined parameter and state estimation

- Nonlinear models

- High dimesions

- Applications with reservoir simulation models

Reference

- http://EnKF.nersc.no

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Data Assimilation

THE ENSEMBLE KALMAN FILTER

Springer