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