Data Assimilation

ECTS
3 crédits

Hourly volume
69h

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

-The general concepts behind Data Assimilation
-The key step to predict the state of a system by combining models and observations: formal definition of a dynamical system, error specification, interpretation of results
-Methods fro handling nonlinearity and large scale
-Variationnal methods for Data Assimilation
-Ensemble methods for Data Assimilation

At the end of this module, the student should be able to:

-Analytically solve a vairaitonnal Data Assimilation problem
-Design a data assimilation system using a description of a system using partial differential equation
-Assess the performance of a system, question the relevance of the mathematical assumptions

Necessary prerequisites

Numerical algebra for large scale, statistical estimation, non-convex smooth optimization, numerical solution of PDEs

Practical info

Location(s)

Toulouse