

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 for handling nonlinearity and large scale
- Variational methods for Data Assimilation
- Ensemble methods for Data Assimilation

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

- Analytically solve a variational 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