
A generic approach to explicit simulation of uncertainty in the NEMO ocean model

Jean-Michel Brankart^{*1}, Florent Garnier¹, Christophe Calone¹, Emmanuel Cosme¹, and Pierre Brasseur¹

¹IGE/MEOM – CNRS : UMR5001 – Grenoble, France

Abstract

A generic implementation approach is investigated, with the aim of transforming a deterministic ocean model (like NEMO) into a probabilistic model. With this approach, several kinds of stochastic parameterizations can be implemented to simulate the non-deterministic effect of unresolved processes, unresolved scales and unresolved diversity. The method is illustrated with three applications, showing that uncertainties can produce a major effect in the circulation model, in the ecosystem model, and in the sea ice model. These examples show that uncertainties can produce an important effect in the simulations, strongly modifying the dynamical behaviour of these three components of ocean systems.

^{*}Speaker