

Title:

Conservative formulation for stochastic Saint Venant equations and their numerical integration

Authors:

Pierre-Marie Boulevard¹, Etienne Mémin², Jacques Sainte-Marie³

Abstract:

Using the LU (Location Uncertainty) framework that gives a natural stochastic parametrization for fluid mechanics equations we derive a stochastic version of the Saint-Venant system. Even if the obtained system may offer some additional trouble when compared with their deterministic counterparts, we are able to define its characteristics (eigenvalues, conserved quantities...).

Based on a finite volume framework, we also propose a numerical strategy for the discretization of the model; the properties of the scheme are discussed.

Finally some simulation results are proposed.

¹ INRIA Paris & INRIA Rennes

² INRIA Rennes

³ INRIA Paris