

ICNAAM 2009

MINI-SYMPOSIUM DESCRIPTION

SHALLOW WATER FLOWS: NUMERICAL METHODS AND APPLICATIONS

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Description: Flows whose horizontal length scale is much greater than its vertical length scale are commonly modeled by the Saint-Venant equations, a hyperbolic system of balance laws that results from averaging the Navier-Stokes equations over the depth of the flow. The wide range of physical flows for which these equations are applicable (*e.g.*, climate models, flood control, or coastal engineering) and the many challenges that the non-linear PDE poses have lead, over the past several years, to the detailed analysis of their solutions and the development of numerical schemes for approximating them. The goal of this minisymposium is to review new applications of the Saint-Venant system to model shallow water flows and the algorithms for computing its solutions. A non-exshustive list of topics to be covered is:

- steady state solutions and balance of source terms
- schemes for multi-layer flows
- schemes for flows in channels with irregular geometry
- high-order schemes
- applications: sedimentation, climate models

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