

Mathematical Modelling of Free Surface Flows

Edie Miglio, Alfio Quarteroni, Fausto Saleri

Abstract

In this article, starting from the 3D incompressible Navier-Stokes equations, the mathematical modelling of free surface water flows is developed. Proper boundary conditions are introduced and some simplifying assumptions (hydrostatic and Boussinesq approximations) are presented. Finally 2D and 3D models are derived and discussed.