

Abstract

This paper focuses on a numerical implementation for simulating complex flow phenomena such as shock wave and wave runup. We use the Nonlinear Shallow Water Equations (NSWE) for representing the flow. The wave model is implemented by using finite volume with momentum conservative staggered grid scheme. A relatively simple leap-frog scheme, upwind method, and special treatment in advection term are used in the numerical implementation. To test the numerical implementation, we reconstruct a physical experiment that was proposed by Aureli et al. 2000 [2], i.e. a dam-break flow that creates shock wave and wave runup. Results of numerical simulation shows a good agreement with experimental data of [2].