

Comparison between Experimental and SPH Models over a Sharp-crested Weir

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Abstract

In this paper the numerical simulations of a free surface flow over a sharp-crested weir are presented and compared to experimental results. The numerical model implemented consists of the meshless Smoothed Particle Hydrodynamics (SPH) method which uses Navier-Stokes equations and the Tait equation of state for water. This numerical method has been developed in the framework of a master thesis and aimed to define the characteristics of the free jet. The validation of the results was performed through the analysis of the pressure field and the comparison of the numerical free surface profiles with experimental measurements conducted in the Hydraulic Laboratory of the University of Liège (ULg). A good qualitative agreement has been obtained.

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