

## Experiments of a Free Surface Flow in a Hydraulic Channel over an Uneven Bottom

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**Abstract :** The present study is concerned with the problem of determining the shape of the free surface flow in a hydraulic channel which has an uneven bottom. For the mathematical formulation of the problem, the fluid of the two-dimensional irrotational steady flow in water is assumed inviscid and incompressible. The solutions of the nonlinear problem are obtained by using the usual conformal mapping theory and Hilbert's technique. An experimental study, for comparing the obtained results, has been conducted in a hydraulic channel (subcritical regime and supercritical regime).

**Keywords :** free-surface flow, experiments, numerical method, uneven bottom, supercritical regime, subcritical regime

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