# On the Free-Surface Generated by the Flow over an Obstacle in a Hydraulic Channel

**Authors :** M. Bouhadef, K. Bouzelha-Hammoum, T. Guendouzen-Dabouz, A. Younsi, T. Zitoun
**Abstract :** The aim of this paper is to report the different experimental studies, conducted in the laboratory, dealing with the flow in the presence of an obstacle lying in a rectangular hydraulic channel. Both subcritical and supercritical regimes are considered. Generally, when considering the theoretical problem of the free-surface flow, in a fluid domain of finite depth, due to the presence of an obstacle, we suppose that the water is an inviscid fluid, which means that there is no sheared velocity profile, but constant upstream. In a hydraulic channel, it is impossible to satisfy this condition. Indeed, water is a viscous fluid and its velocity is null at the bottom. The two configurations are presented, i.e. a flow over an obstacle and a towed obstacle in a resting fluid.