**Analysis of Flow’s Energy Dissipation Behavior in Concrete Blocks**

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**Abstract**

Stability of half submerged concrete blocks to dissipate flow energy can be evaluated by their small movements in flow. By way of fluid dynamic analysis with the Eulerian approach and solid dynamic analysis with the Lagrangian approach, this paper investigates various values of parameters including concrete strength as well as friction coefficient between blocks and riverbed to study mechanical behavior and stability of the blocks with elasto-plastic material in gravitational field. The study adopts an approach to verify concrete blocks’ performance in terms of effective stress, plastic strain, and displacement obtained from numerical analysis rather than directly using experimental data from laboratories in literatures. Although the analytical study applied multipurpose software MSC.Dytran which incorporated the pre- and post-processing software MSC.Patran, the author poses innovative approaches in numerical model setup that includes one set of fluid-solid interaction, one set of solid-solid contact, and zero-displacement conditions at the bottom nodes of riverbed-object.

Keywords: Active Fault Investigation; Probability Density Function Model; Active Fault Earthquake Probability

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1