

Abstract

Reservoir sedimentation amount is large and the related expenses are also high. Vegetations can affect the flow conditions. So, the effects of different rod diameters rolling as the vegetative agents on the flow conditions have been investigated in this laboratory research. The laboratory test was set up by three different slope conditions, namely 0, 1 and 2 percents, in presence of two flow concentration conditions (40 and 80 gr/lit) and five different vegetative (rod diameter) conditions, namely 0.2, 0.61, 0.85, 1.1, and 1.9 cm. The dimensional analysis revealed the affecting parameters' contributions, which were determined to be the frontal velocity and flow height. The flow velocity was decreased by 9.55, 14.65, 18.5, 28.58 and 33.76 percents, accordingly, while the related froude numbers were decreased with a mean of 20 percent and so the frontal flow velocity was increased and its height was decreased. The average Coefficient of contraction was found to be 0.754 and 0.58 for un-vegetated and vegetated environments, respectively.

Key words: Density current, rod diameter, velocity variations, Lab setup model.



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