



Experiments on the Characteristics of Gravity Currents under Different Conditions

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Gravity currents produced by saline water releasing into a fresh water tank are studied to understand the influence of salinity, vegetation density and bed roughness on gravity current kinematics. The experiment is conducted in the flume with measuring systems including digital camera and Particle Image Velocimetry (PIV). The evolution of the current front position and the front velocity are analyzed and related to different phases of the current. Spatial-temporal evolution of the current speed, height and macro-structures of head are assessed. The results show that roughness of the bed and vegetation density plays important roles in the current kinematics, particularly in decreasing the front velocity and changing the front shape.