World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Experimental Study of Local Scour Downstream of Cylindrical Bridge Piers

Authors : Mohammed Traeq Shukri

Abstract : Scour is a natural phenomenon caused by the erosive action of flowing stream on alluvial beds, which removes the sediment around or near structures located in flowing water. It means the lowering of the riverbed level by water erosions such that there is a tendency to expose the foundations of a structure. It is the result of the erosive action of flowing water, excavating and carrying away material from the bed and banks of streams and from around the piers of bridges. The failure of bridges due to excessive local scour during floods poses a challenging problem to hydraulic engineers. The failure of bridges piers is due to many reasons such as localized scour combined with general riverbed degradation. In this paper, we try to estimate the temporal variation of scour depth at non-uniform cylindrical bridge pier, by experimental work in civil engineering hydraulic laboratories of Gaziantep University on a channel have dimensions of 8.3m length, 0.8m width and 0.9m depth. The experiments will be carried on 20 cm depth of sediment layer having d50=0.4 mm. Three bridge pier shapes having different scaled models will be constructed in a 1.5m of test section in the channel.

Keywords : scour, local scour, bridge piers, scour depth, vortex, horseshoe vortex
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020