عنوان مقاله:

An Experimental and Numerical Comparison of Flow Hydraulic Parameters in Circular Crested Weir Using Flow3D

نویسندگان:

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خلاصه مقاله:

Circular crested weirs consist of a circular crested of upstream and downstream walls. These weirs are widely used in hydraulic engineering as water discharge structures and can be used to control water level in channels and tanks. In the present study, using Flow3D software, hydraulic properties were investigated to find weir geometry optimization through CFD method. Also, this study attempted to investigate flow on some sections of circular crested weirs in 3 groups and 11 models. Upstream and downstream slope changes as well as the height of the weir were also studied. To validate the model, laboratory models were used. In the research, flow depth parameters on crest, pressure distribution, velocity distribution, energy loss on circular crested weirs, as well as the height and changes of upstream and downstream slope were evaluated. Flow depth on the body of circular crest in this state is about 0.71 (H1). Upstream slope changes on flow depth on the weir's crest revealed that increasing upstream slope causes to the increase of flow relative depth (H1/R) on the crest about 62%. Downstream changes in H1/R values less than 0.7 have no significant effect on discharge coefficient; however, increasing H1/R values seems to cause more change in slope

کلمات کلیدی:

Circular Crested Weirs, Flow3D, CFD, Upstream Slope of Weir, Downstream Slope of Weir