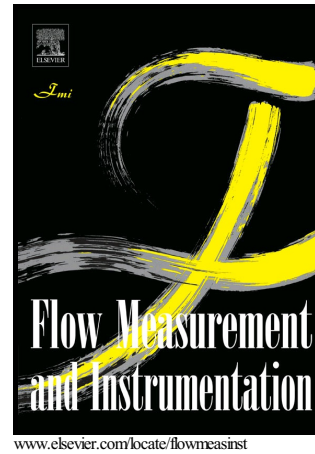


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Experimental Study on Flow over In-Reservoir Arced Labyrinth Weirs

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Abstract

For a given width, labyrinth weirs provide an increase in the weir crest length, which increases the weir flow capacity. Labyrinth weirs are generally designed in linear configurations. However, arced configurations have been employed in reservoir applications to improve the orientation of the weir cycles to the approach flow and to further increase the weir crest length. This paper experimentally studies the flow characteristics of arced labyrinth weirs. Experimental observations are presented and the parameters affecting the flow capacity are discussed. The effects of the headwater ratio (H_o/P), the sidewall angle (α), and the weir arc angle (θ) on the discharge coefficient and the efficiency are also investigated. The results indicate that the efficiency of an arced labyrinth weir can be increased up to almost 4.5 times of that of a linear weir. However, the benefits of increasing θ and decreasing α diminish by increasing H_o/P .

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