(selezionare la tipologia di presentazione del lavoro)

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ENTROPY PARAMETER ESTIMATION IN A HIGH-CURVATURE CHANNEL: EXPERIMENTAL INVESTIGATION IN A LABORATORY FLUME

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ABSTRACT

The entropy model developed by Chiu (1988) allows to correlate the mean velocity, u_m, and the maximum velocity, u_{max} by means of a linear relationship, $u_m = \Phi (M) u_{max}$, which depends on the entropy parameter, M, characteristic of the fluvial section. This formulation was tested on several natural streams with different hydraulic and geometric characteristics (Ammari et al. 2010, Moramarco et al., 2004; Moramarco and Termini, 2015). In this paper, attention is focused on the verification of the entropic relationship between the mean velocity and maximum velocity in the presence of the forcing action due to the variable channel curvature and for different values of the aspect ratio. The analysis is conducted with the aid of experimental data collected in laboratory channels produced at the Department DICAM, University of Palermo.
The results have shown that the linear relationship between the mean velocity and the maximum velocity, defined by the entropy model, remains valid in high curvature channel in which the effect of the secondary circulation is significant. But. It has been observed that the value of the entropic parameter M tends to change as a function of the aspect ratio. The different behavior obtained for different values of the aspect ratios strongly depends on the entity of the secondary circulation.

References

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