

MATHEMATICAL MODEL FOR VERTICAL DISTRIBUTION OF VELOCITY IN CHANNELS. A CASE STUDY

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Abstract

The present paper, based on the common equation of hydraulics and on a selection of quantitative specifications from literature dealing with this subject, consists of a double-parabolic theoretical law referring to the vertical distribution of velocities in open channels. Then, based on this distribution law, algebraic expressions for the relative quota corresponding to the average velocity as well as for the assessment of the Coriolis and Boussinesq coefficients are deduced. For a concrete example of calculation, the algebraic relations deduced are verified using numerical methods.

Key words: Open channel, vertical distribution of velocities, double-parabolic law, Coriolis coefficient, Boussinesq coefficient.