Numerical analysis of steady gradually varied flow in open channel networks with hydraulic structures

W. ARTICHOWICZ[1] and D. GĄSIOROWSKI[1]

[1] Gdansk University of Technology, Faculty of Civil and Environmental Engineering,
G. Narutowicza 11/12, 80-233 Gdańsk, Poland
e-mail: wojartic@pg.gda.pl

ABSTRACT

In this paper a method for numerical analysis of steady gradually varied flow in channel networks with hydraulic structures is considered. For this purpose a boundary problem for the system of ordinary differential equations consisting of energy equation and mass conservation equations is formulated. The boundary problem is solved using finite difference technique which leads to the system of non-linear algebraic equations. The arising system is solved with modified Picard method. The presented methodology is applicable to any channel network type and any type of hydraulic structure.