ON THE NUMERICAL SOLUTION OF THE ONE-DIMENSIONAL SHALLOW WATER EQUATIONS IN CONSTANT-DEPTH ENVIRONMENT

I. Th. Famelis¹, A. M. Prospathopoulos², S. Sarantopoulos³ and A. G. Bratsos¹

¹ Department of Mathematics, Technological Educational Institution (T.E.I.) of Athens, GR-122 10 Egaleo, Athens, Greece. E-mail: ifamelis@teiath.gr and bratsos@teiath.gr
² Hellenic Centre for Marine Research (HCMR), Institute of Oceanography, P.O. Box 712, GR-190 13 Anavyssos, Greece. E-mail: aprosp@ath.hcmr.gr
³ Shipbuilding Department, Technological Educational Institution (T.E.I.) of Athens, GR-122 10 Egaleo, Athens, Greece. E-mail: sarantop@teiath.gr

Keywords: Shallow water waves; Boussinesq equations; Numerical modelling; Finite-difference method

Abstract. This paper presents a parametric finite-difference scheme concerning the numerical solution of the one-dimensional Boussinesq-type set of equations, as they were introduced by Peregrine, in the case of waves relatively long with small amplitudes in water of constant depth. The method which is used can be considered as a generalization of the Crank-Nicholson method and it has been applied successfully to a problem used by Beji and Battjes.

REFERENCES


