Oceanography/Vol.1/No.1/Spring 2010/1/7-7

Interaction of Evaporation, Rain and Rivers Effects in Finite Volume Modeling of Horizontal Flow on Caspian Sea 3D Bed

Sabbagh Yazdi, Saeed Reza[1]; Momeni, Ata[2]

1- K.N.Toosi University of Technology, I.R. Iran
2- Mahab Ghodss Consulting Engineering Co, I.R. Iran

Abstract

NASIR software is used to solve conservative shallow water equations on three dimensional bed which is formed by an unstructured triangular mesh. In this work, the two dimensional triangular mesh is converted to a three dimensional surface by interpolting the bed elevation from an available contour map. This model consideres Coriolis force due to earth rotation as well as bed roughness and turbulent effects in the conservattive depth integrated horizontal momentum equations by asuming hydrostatic pressure distribution. The effects of evaporation and rain on the water surface as well as inflow from the seven major rivers at surrounding boundary points are considered via the source terms of the conservattive depth integrated continuity equation. In this paper, the effects of surrounding rivers on formation of hizontal circulations are investigated. The computational results are presented in terms of water surface level variations and the stream traces.

Keywords: *Caspian Sea Flow, River Effects, NASIR Software, Horizontal Circulations, Three Dimensional Bed*