

عنوان مقاله:

A Two-Dimensional Laterally Averaged Model for Lakes, Reservoirs and Estuaries

محل انتشار:

ششمین همایش بین المللی سواحل، بنادر و سازه های دریایی (سال: 1383)

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خلاصه مقاله:

To understand and predict the circulation and pollutant transport in estuaries and lakes, numerical modelling techniques have been extensively developed in the last two decades. Two-dimensional, laterally averaged hydrodynamic models are commonly used to model physical processes of tidal propagation and gravitational circulation in estuaries. The application of these models is best suited to cases where the lateral dimension of the estuary is small compared with the longitudinal dimension. The main advantages of the 2-D models are that much finer resolution in the longitudinal and vertical directions may be achieved and numerical dispersion can be better controlled than in comparable 3-D models. Thus 2-D models are computationally less expensive than 3-D models are therefore better able to provide simulation over long time scales (e.g. seasons) than corresponding 3-D models [3]. In this paper, a two-dimensional, laterally averaged numerical model called MIKE 11 Reservoir (MIKE 11 XZ) is introduced and verified. This model can simulate hydrodynamics and water quality in lakes, reservoirs and estuaries. The core of the model is a 2-D vertical hydrodynamic flow model, solved in a computational grid adapting to the water surface variation. The model allows the model user to include riverine branches in conjunction with reservoir/lake and estuary branches. This code also allows the user to insert hydraulic elements between branches (pump, weirs, bridges, culverts, control and dam break structures), view model results graphically/animation as they are being computed, use a variety of turbulence closure schemes, and a comprehensive description of surface energy transfer (is implemented (radiation, evaporation and convective heat transfer

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

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