

عنوان مقاله:

Develop of a Fully Nonlinear and Highly Dispersive Wave Equation Set; Analysis of Wave interacting with Varying Bathymetry

محل انتشار:

هفتمین همایش بین المللی سواحل، بنادر و سازه های دریایی (سال: 1385)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Extended Boussinesq-type water wave equations are derived in two horizontal dimensions to capture the nonlinearity effects and frequency dispersion of wave in a high accuracy order. A multi-parameter perturbation analysis is applied in several steps to extend the previous second order Boussinesq-type equations in to 6th order for frequency dispersion and consequential order for nonlinearity terms. The presented high-order Boussinesq-type equation is applied in a numerical model to simulate the wave field transformation due to physical processes such as shoaling, refraction and diffraction. The models results are compared with available experimental data which obtained in a laboratory wave flume with varying bottom in Delft Hydraulic Institute and an excellent agreement is obtained.

کلمات کلیدی:

Boussinesq equations, Perturbation analysis, Varying bathymetry

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