A simplified model for extreme-wave kinematics in deep sea(PDF)

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摘要: Based on the fifth-order Stokes regular wave theory, a simplified model for extreme-wave kinematics in deep sea was developed. In this model, from the wave records the average of two neighboring wave periods for the extreme crest or trough was defined as the period of the Stokes wave by the up and down zero-crossing methods. Then the input wave amplitude was deduced by substituting the wave period and extreme crest or trough into the expression for the fifth-order Stokes wave elevation. Thus the corresponding formula for the wave velocity can be used to describe kinematics beneath the extreme wave. By comparison with the published numerical models and experimental data, the proposed model is validated to be able to calculate the extreme wave velocity rather easily and accurately.

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