Model Matematik Osilasi Gelombang di Pelabuhan dengan Metode Elemen Hingga

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Abstract

The research aims to observe the process of wave osilation in harbour using finite element method. The finite element method is choosen because its ability for modelling the region which has a non-simple geometric shape, I.e on the harbour region, on the surrounding island and on the sea which has vary on the depth.

Wave's osilation can be modelled mathematically using two dimension-elliptical-mild slope equation, with triangle shape element linear interpolation. The equation was solved using Galerkin method. The results are the height of water level and wave level on various model which are made by an existing model from previous research.

The results of the research indicate that mild slope equation solved by using finite element method give a good performance. Results from the test conducted by Chen have the same trend for the same wave period, that is commit on the top as the period of the wave between 10 and 11.

Keyword : mathematical model, osilation wave, finite element method

Kata kunci : model matematik, osilasi gelombang, metode elemen hingga