

Abstract

Coastlines are often eroded by sea waves. One way to reduce the erosion is by utilizing the mangrove forests as a natural damper of the waves. This event can be learned by simulating the dampening of sea water waves by mangrove forests in one dimension using the water wave model. The wave of water to be studied in this event is a dispersive wave. Dispersive waves mean that longer waves will propagate faster than shorter waves (at the same water depth). Dispersive waves can be modeled using Variational Boussinesq Model (VBM). Damping by mangroves will be numerically modeled in the form of dissipation equations. This equation is added to the VBM's momentum equation. In this Final Project the model is approached using Finite Volume Method (FVM) in the staggered grid scheme, then will be compared with the experimental results.

Keywords: wave, mangrove, simulating, *Variational Boussinesq Model*, *staggered grid*.