

Estimation of Pressure Variation on Rubble-Mound Breakwaters Using Wave Momentum Flux Parameter

Moghim, Mohammad Navid

*Assistant Professor, Department of Civil Engineering, Isfahan University of Technology, Isfahan, Iran.
Email: moghim@cc.iut.ac.ir*

Received Date: February 9, 2015

**Corresponding Author*

Accepted Date: August 17, 2015

© 2015 Oceanography. All rights reserved.

Abstract

Wave induced pressure variations on rubble mound breakwater are important to enable correct designing of this structure. Because of its effect on the hydraulic stability of armor layer, hydraulic interactions and water surface elevation inside the breakwater, the importance of investigating the effect of wave induced pressure on the structure will be cleared. Due to the complexity of wave breaking interaction with a porous rubble mound breakwater, calculating the pressure on the structure is not possible by using analytical methods. In this paper, a simple physical argument by using maximum depth-integrated momentum flux in a wave as it reaches the toe of the structure was used to derive a formula to calculate the pressure variation on rubble mound breakwater. The results showed a good estimation of wave pressure variation on the rubble-mound breakwaters by using wave momentum flux parameter for regular and irregular waves. Also, it can be concluded that the wave dynamic pressure has a dominate contribution in a total depth-integrated wave momentum flux.

Keywords: Rubble-mound breakwaters, Pressure, Wave momentum flux, Regular and irregular wave.
