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Effect of Runup over a Vertical Pile Supported Caisson Breakwater and Quarter Circle Pile Supported Caisson Breakwater

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Abstract : Pile Supported Caisson breakwater is an ecofriendly breakwater very useful in coastal zone protection. The model is developed by considering the advantages of both caisson breakwater and pile supported breakwater, where the top portion is a vertical or quarter circle caisson and the bottom portion consists of a pile supported breakwater defined as Vertical Pile Supported Breakwater (VPSCB) and Quarter-circle Pile Supported Breakwater (QPSCB). The study mainly focuses on comparison of run up over VPSCB and QPSCB under oblique waves. The experiments are carried out in a shallow wave basin under different water depths (d = 0.5 m & 0.55 m) and under different oblique regular waves (0⁰, 15⁰, 30⁰). The run up over the surface is measured by placing two run up probes over the surface at 0.3 m on both sides from the centre of the model. The results show that the non-dimensional shoreward run up shows slight decrease with respect to increase in angle of wave attack.

Keywords : Caisson breakwater, pile supported breakwater, quarter circle breakwater, vertical breakwater
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