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Run-up of solitary waves on variable slopes

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Behaviors of tsunamis in the coastal area should be very carefully analyzed and predicted. In special, an accurate analysis of incident tsunamis around coastal structures is directly related to the safety of coastal communities. Thus, a proper and accurate numerical model should be used to analyze tsunami behaviors near coastal communities. In this study, the maximum run-up heights of solitary waves on varaible beach slopes are investigated. The solitary waves are probably most suitable incident wave representing behaviors of tsunamis and they can propagate a long distance without transformation. The existing popular numerical model is first employed to investigate run-up heights of solitary waves acting on varaible slopes. The series of laboratory experiments are also conducted to analyze run-up heights of solitary waves. The maximum run-up heights of solitary waves are measured in hydraulic laboratory and the accuracy of the numerical model is analyzed by comparing the laboratory measurements related to maximum run-up heights of solitary waves. Various conditions such as variable beach slopes, heights of incident solitary waves, and existence of submerged breakwater are tested in laboratory experiments.

Biography

Yong-Sik Cho got hiscPhD from Cornell University in 1995. The title of his thesis is Numerical Simulations of Tsunami Propagation and Run-up (Advisor: Professor Philip L.-F. Liu). From March 1997, he had been employed as an Assistant Professor at the Department of Civil and Environmental Engineering at Sejong University, Korea and then moved to the Department of Civil and Environmental Engineering, Hanyang University on March 2000. He has published 84 papers in peer-reviewed international journals.

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