Numerical Modeling of Shoreline Response to Multi-Purpose V-shaped Submerged Breakwaters

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Abstract

Submerged breakwaters are some type of effective coastal structures that are commonly being used to protect coastal area against erosion. Submerged breakwaters reduce wave energy approaching the beach by stimulating waves to break and dissipate their energy over the structure. In present study, a new approach toward numerical modeling (using the roller model) of shoreline response to a multi-purpose V-shaped submerged breakwater has been presented. The results of a series of 2DH numerical modeling tests indicate that shoreline response to multi-purpose V-shaped submerged breakwater scan varies between erosive and accretive, depending on the offshore distance to the structure. Breakwater crest level has significant impact on the magnitude of shoreline response, but not on the mode of shoreline response (i.e. erosion vs. accretion).