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Armor Stability of Seawall at Jungjuk Artificial Island with Hydraulic Model Experiments

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In recent years, Korea has suffered from the great Typhoons such as 'Rusa' and 'Maemi', and these brought about a lot of damages on breakwaters and other coastal structures. Therefore it is more important that the stability of structures, which influence on the human safety, should be checked before construction. On southern parts of Korea, the bridges and the immersed tunnel were under construction to link the Korean peninsula (Busan) with Geoje island, however, these areas were exposed to extreme waves and water levels during typhoons from southerly directions. Jungjuk artificial island is located on the middle of Geoje and Busan. The purpose of this research was to investigate the stability of the main seawall and the immersed tunnel which will form the part of the fixed link between Geoje and Busan by using the hydraulic model experiments. Jungjuk island's main function is to protect the tunnel and portal structures from heavy wave impacts and flooding during typhoons. Various experimental proposals were tested to satisfy the stability condition of seawall. Briefly, 50ton tetrapod (T. T. P.) was covered on all main seawalls at original design, however, 72ton T. T. P. was suggested partially at the border between original ground and seawall due to the geographical reason and the wave characteristics such as wave breaking and currents.