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Research on the Changes of Tsunami Behaviors at the Coastal Area by the Artificial Structures

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It is well known that the propagation and run-up of tsunamis are affected by bathymetry and topography of the evaluated area. And the tsunami behaviors may influenced by the topographical changes of coastal areas due to industrial development. As an example, there are relatively severe flooding effects at the south of the Fukushima Daini nuclear power plant site (F2) during the Great East Japan Tsunami on 11 March 2011. It is thought that the tsunami energy was proceeded to the F2 site due to the reflection by the south breakwater.
So the numerical model was performed to compare the change of tsunami behavior with the artificial changes such as dredging, breakwater and grading for the coastal area.
As the result of this study, the artificial structures can make significant changes of tsunami behaviors. And when the coastal area development is implemented, it is needed to take into consideration the site grading, breakwater layout in order to reduce tsunami effects at the area.