Numerical Study of Tsunami Forces by Stabilized Finite Element Method

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ABSTRACT

It is important to estimate the effects of tsunamis inundation and impulse forces by differences between arrangements, shapes and number of buildings. The numerical study based on the FEM or FVM using the unstructured mesh is an efficient for these investigations.

This paper presents a numerical study of building impacts by tsunami propagation and inundation. In order to estimate the forces obtained by the velocity and the tsunami height and the inundation depth, the Stabilized Finite Element Method of which the basic equation was the 2D shallow water equation was applied. For the numerical example, several tsunami propagation and inundation analyses were carried out in order to estimate the tsunami forces for the buildings by inundation, run-up and impulse tsunami wave forces. From these study, it can be concluded that present study is a significant to estimate the vulnerability of buildings with respect to a regional scale tsunami risks.

REFERENCES

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