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Changes of Probability Distributions in Tsunami Heights with Fault Parameters

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Abstract
This study explored the changes of the probability distribution in tsunami heights along the eastern coastline of the Korea for virtual earthquakes. The results confirmed that the changes of the probability distribution in tsunami heights depending on tsunami fault parameters was found. A statistical model was developed in order to jointly analyse tsunami heights on a variety of events by regarding the functional relationships; the parameters in a Weibull distribution with earthquake characteristics could be estimated, all within a Bayesian regression framework. The proposed model could be effective and informative for the estimation of tsunami risk from an earthquake of a given magnitude at a particular location. Definitely, the coefficient of determination between the true and estimated values for Weibull distribution parameters were over 90% for both virtual and historical tsunami.
Keywords: Tsunami heights, Bayesian model, Regression analysis, Risk analysis

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