

Tsunami inundation simulation and agent based modeling to support evacuation analysis and mitigation planning

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Abstract

An agent-based model was developed to test and analyze issues during the tsunami evacuation from the 2011 Great East Japan Tsunami in Yuriage, Natori at the Miyagi coast of Japan. Post-tsunami records reported that residents did evacuate to nearby shelters. However, when the tsunami warning information estimated higher levels of expected waves, several evacuees decided to conduct a second evacuation from one shelter to another far inland. In this study, based on simulations, we discuss the consequences of evacuees' decision and the outcomes if a second evacuation would have not been executed. The number of reported fatalities in this event is compared to estimations from simulation to verify the model. Future evacuation plans and decisions for reconstruction process and urban planning can be aided by these kinds of models.

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