

Comprehensive Tsunami Damage Scenario Simulator – Supporting Disaster Prevention and Education

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A comprehensive tsunami damage scenario simulator (CTDSS) is capable of expressing, based on various scenarios assumed, a variety of situations in a comprehensive manner, including the status of transmission of disaster information to area residents, their evacuation status, and the status of the spread of tsunami. For example, the influence of various response scenarios on the number of casualties clearly illustrates the relationship between tsunami hazard preparation and disaster prevention.

The simulator has been developed based on geographic information system, so that it can analyze the distribution of evacuated residents and the status of tsunami development (that would change with the elapse of time after earthquake occurrence), and can predict personal and physical financial damages.

This simulator can be utilized as a tool for assisting in drawing up comprehensive disaster prevention plans for tsunami damage. This simulator is also capable of displaying the results as animated images, so it can be expected to be used as a disaster prevention educational content that can provide easy-to-understand visual explanations on the scope and speed of the spread of tsunami, and the effect which speedy evacuation has on reducing personal damage.

Component simulations to CTDSS:

- **Tsunami Simulation:** uses the prepared results of various scenarios, such as, Quake Scale, Arrangement of embankment.
- **Evacuation Simulation:** An evacuee starts evacuating from his/her house to the nearest shelter at the fixed speed and takes the shortest route following the road network.
- **Warning Transmission Simulation:** Tsunami warning is transmitted through the Media (fixed loudspeaker, patrol car, TV, radio, etc.). The warning is then spread by word of mouth among the citizens.

Things that will become possible:

- Detailed projection of personal and financial damages during times of tsunami disasters, which reflect the current disaster prevention plans and regional circumstances.
- Drawing up information dissemination strategy, evacuation plans, and facility establishment plans that are based on specific indicators such as the number of victims.
- Creation of intuitive and easy-to-understand disaster prevention educational contents for general citizens.