Tsunamis	**Session – VI Dec 3 (Friday)**

LECTURE HALL I **14:15**

DEVELOPMENT OF TSUNAMI COMPREHENSIVE SCENARIO SIMULATOR FOR DISASTER EDUCATION AND RISK MANAGEMENT

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It is impractical to give warning and evacuate people from the direct seismic effects of an earthquake because the fault rupture and ground motion are practically concurrent. On the other hand, there is usually a short lead-time for tsunami attack after receiving a seismic signal, which makes effective warning and evacuation possible. Combined with the fact that a tsunami is a rare event, the primary mitigation measure for tsunamis is to develop effective warning system and evacuation strategies. As for a tool to optimize the warning system and evacuation in a limited time an integrated simulator was developed; the simulator combines hydrodynamic simulation of tsunami with warning and human-response simulations for evacuation. Those simulations are synchronized and interacted each other and are presented in a GIS framework together with the realistic computer-graphic animation. It is emphasized that both warning-transmission and human-response simulators were developed based on the rational stochastic models. Furthermore, because of its visual GIS presentation, the simulator is used to educate the general public; in some sense, the simulator can be considered as a dynamic hazard map. As for a test case, we applied the simulator to one of the tsunami-prone areas in Japan -- Owase City, where the 1946 Nankaido Tsunami damaged and a future tsunami is being anticipated. Effectiveness of the existing warning system and the resulting residents' evacuation were examined by running the simulator with several possible scenarios. Temporal and geo-spatial variations of human casualty were counted quantitatively for each scenario run, which were correlated with the delay of resident's evacuation and the delay of disaster information transmission. The simulator exercise clearly demonstrates the importance of prompt evacuation in a realistic and quantitative manner. By showing the simulations and conducting the questionnaire survey, before and afterward, to the residents of Owase, we found significant change in tsunami awareness and proper perception for prompt evacuation.