Development of Simulation System for

Tsunami Evacuation Using Virtual Reality Technology

* Takeshi Kawabe[1], Kazuo Kashiyama[1], Hiroshi Okawa[2] and Hideo Miyachi[3]

[1]Department of Civil and Environmental Engineering, Chuo University, Japan
[2] Eight-Japan Engineering Consultants Inc.
[3] Advanced Solution Division, CYBERNET Inc.

*Corresponding author: kawabe@civil.chuo-u.ac.jp

This paper presents a simulation system for the tsunami evacuation using virtual reality technology. The present system can be classified into two parts: simulation part and visualization part. For the simulation part, the simulation of tsunami wave considering the collapse of building is carried by the shallow equation using finite element method. Then the simulation of tsunami evacuation based on multi-agent model. For the visualization part, the simulation results are visualized by the stereoscopic view using virtual reality technology. From this, users can understand the simulation results easily. Also, as the view from the refugee's eye can be created in the VR space, the user can understand the feeling of refugee easily. The present system is applied to the evacuation analysis by the tsunami waves in urban area is shown to be a useful tool to investigate the damage of building and human being by tsunami waves.

Keywords: Virtual Reality, Evacuation Analysis, Multi-Agent, Tsunami Simulation