



Meguro Lab.

[Disaster Prevention Research from Hardware to Software]

http://risk-mg.iis.u-tokyo.ac.jp/

Urban Earthquake Disaster Mitigation Engineering

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Experience the Hazard Map of Tokyo! Come to Be-603!

Risk and Disaster Management Information System

Japan has been facing a period of high seismic activity. Expected major earthquakes within next 30 years are Tokai earthquake (Magnitude 8, 88 % probability), Tonankai earthquake (M8.1, 70~80%), Nankai earthquake (M8.4, 60%) and Tokyo Metropolitan earthquake (M7.3, 70%). According to the Central Disaster Prevention Council, total damage is estimated to be 200 trillion yen, including 2million destroyed/burnt houses. **Can you protect your family, lover, friends and yourself from these earthquakes?** The principle of disaster management is "How to increase the number of people who can specifically imagine the situation around them as time goes by during the disaster". An appropriate preparation requires disaster imagination. **Meguro lab has established Risk and Disaster Management Information System to show the disaster situation specifically based on physical and social grounds.**



Development of Universal Earthquake Disaster Environment Simulator

Hardware (Physical Analysis)

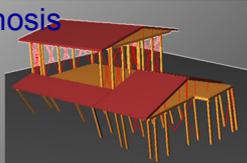
■ Building Collapse Analysis

Building collapse simulation using AEM which enables high-accurate analysis from continuum to non-continuum.



■ Housing Collapse Diagnosis

Development of seismic diagnosis method using vibration generator and DEM. Figure shows the housing collapse simulation by DEM.



■ Furniture Overturning Analysis

Furniture overturning simulation using EDEM. Difference in the layout of the room and furniture were analyzed.



Software (Social Analysis)

■ Evacuation Behavior

Analysis of human evacuation in underground facility and buildings, based on walking characteristics and space designs.



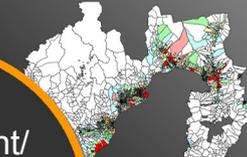
■ Fire Spreading

Damage caused by fire spreading was analyzed. Figure shows the situation 12 hours after the 1923 Great Kanto Earthquake.



■ Countermeasure Effect Evaluation

Research of adopting incentives for retrofitting vulnerable buildings. Effect of "Seismic Retrofitting Promotion System", in case of Shizuoka prefecture, was evaluated.



Risk Management/
Disaster Prevention
Information
Station

Disaster Information Archive

■ Hazard Map Management

For the real-time management of earthquake disaster, damage estimation, evaluation result and hazard maps are organized and accumulated systematically.



■ Tsunami Evacuation System

Integrated system of tsunami simulation and evacuation simulation for residents to understand local tsunami risk and make environment to evacuate properly.



■ Disaster Investigation Report

Organize, accumulate and make use of the knowledge from the past disasters.



Disaster Information Delivery

■ Virtual Reality

Information Terminal

Create a 3D city by virtual reality technology and deliver information such as evacuation route.



■ Next Generation Disaster Prevention Manual

Damage estimation and response navigation will be shown by inputting earthquake information such as epicenter, magnitude, weather and time.



■ Meguro-maki

A tool for improving disaster imagination. Create a story of your own during the disaster by setting a condition of disaster and your situation.

