Data Integration and Simulation Modeling for Urban Earthquake Simulation

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Abstract

High performance computing has enabled us to simulate various earthquake disasters, such as seismic damage of structures and tsunami inundation. In order to perform a practical disaster assessment based on these simulations, we need detailed urban information, which include the information about all individual buildings in a target city. However, the quantity and quality of single raw data sources for individual buildings are limited and fragmented. Thus we need to make the detailed information processing and combining multiple data sources. The key issue is how to automate the model construction avoiding manual work. We have developed a methodology to automatically construct proper seismic response analysis models corresponding to heterogeneous building data sets generated by integration of fragmented raw data sources, such as an official building registry, 3D building shapes, land lot maps, and so on.

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