



The characteristic of the building damage from historical large earthquakes in Kyoto

Akihito Nishiyama

The University of Tokyo, Earthquake Research Institute, Tokyo, Japan (akihito@eri.u-tokyo.ac.jp)

The Kyoto city, which is located in the northern part of Kyoto basin in Japan, has a long history of >1,200 years since the city was initially constructed. The city has been a populated area with many buildings and the center of the politics, economy and culture in Japan for nearly 1,000 years. Some of these buildings are now subscribed as the world's cultural heritage.

The Kyoto city has experienced six damaging large earthquakes during the historical period: i.e. in 976, 1185, 1449, 1596, 1662, and 1830. Among these, the last three earthquakes which caused severe damage in Kyoto occurred during the period in which the urban area had expanded. These earthquakes are considered to be inland earthquakes which occurred around the Kyoto basin.

The damage distribution in Kyoto from historical large earthquakes is strongly controlled by ground condition and earthquakes resistance of buildings rather than distance from estimated source fault. Therefore, it is necessary to consider not only the strength of ground shaking but also the condition of building such as elapsed years since the construction or last repair in order to more accurately and reliably estimate seismic intensity distribution from historical earthquakes in Kyoto. The obtained seismic intensity map would be helpful for reducing and mitigating disaster from future large earthquakes.