Construction of historical document database for damaging earthquakes in Kanto region during the early modern period and felt reports of the 1855 Ansei Edo earthquake in the areas outside Edo City

*Jun Muragishi[1], Akihito Nishiyama[1], Toshifumi Yata[2], Masaharu Ebara[3], Takeo Ishibe[1], Ryoichi Nakamura[1], Kenji Satake[1]

1.Earthquake Research Institute, The University of Tokyo., 2.Niigata University, 3.Historiographical Institute, The University of Tokyo

We are constructing historical document database for damaging earthquakes which occurred in the Kanto region since the 17th century based on previously-published sourcebooks, as a part of the Special Project for Reducing Vulnerability for Urban Mega Earthquake Disasters. Collection and analysis of descriptive contents of historical records are important for mapping damage distribution and estimating the earthquake sources of non-instrumental periods. Survey and collection of historical earthquake records have started in the beginning of the 20th century, and the collected historical records are now compiled as 35 volumes of sourcebooks (the total pages of 28,000). However, not only contemporary historical documents but also various kinds of historical materials such as excerpts from reports and documents describing histories of autonomous community are mixed in these sourcebooks. Therefore, we need to select only reliable historical records, and then emend the descriptions by tracing back to the original documents. We use the XML (eXtensible Markup Language) for mark-upping documents as same for previous database such as “Database for all historical documents in the ancient and medieval ages in Japan” and “Historical earthquake database in high strain rate zone” under the project “Multidisciplinary research project for high strain rate zone” of the MEXT, Japan.
We also conducted document surveys and analyzed historical documents for the Ansei Edo earthquake, which occurred on the 2nd day of the tenth month on 2nd year of Ansei era (November 11th, 1855 on the Gregorian calendar) and caused severe damage in and around Edo City, the former Tokyo Metropolis. We collected new historical records in Chiba prefecture (Muragishi and Satake, 2015, Disaster and Reconstruction and Documentation), and re-examined previously-published historical records in Ibaraki and Kanagawa prefectures (Muragishi *et al.*, 2016, ibid). We also carefully re-examined the felt reports in distant areas from Edo based on previously-published sourcebooks. We selected reliable historical documents describing the time of ground shaking which are consistent with the occurrence time of the Ansei Edo earthquake, and estimated the seismic intensity. On the locations where the felt reports were described, we identified current names and locations (longitudes and latitudes) using other historical documents, contemporary pictorial maps, and literature of Japanese historical studies, and constructed seismic intensity map for this earthquake.
Acknowledgment: This study was conducted as a part of the Education, Culture, Sports, Science and Technology Ministry funded research "Special Project for Reducing Vulnerability for Urban Mega Earthquake Disasters ".

Keywords: historical earthquakes, earthquake historical documents database, 1855 Ansei Edo Earthquake

