



Long-term seismic activity database based on historical diaries widely distributed in Japan

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In this study, we develop a database that helps us understand long-term seismic activities, by searching and analyzing high-quality historical diaries containing descriptions of earthquake activities and the resulting damages throughout Japan.

It is extremely important to understand long-term seismic activity when evaluating future earthquake risks in Japan, which is an earthquake-prone country. Historical documents provide important information on seismic activity, dating back several hundred years ago, prior to the development of modern measuring instruments. In particular, to understand the seismic activity, including the small and medium scale, it is effective to use diaries in which the description is written daily. In addition, utilizing such diary documents provides the following advantages: (1) The descriptions are highly reliable because they were written on the same day as earthquakes occurred. (2) It is possible to accurately identify the place where the diary was written. (3) Since the same person kept the diary for decades, we can obtain continuous and stable information. (4) In the Kinki district, especially in Kyoto and Nara, historical diaries have existed since the ancient and medieval eras (AD 10-16C) providing continuous records for about 900 years.

In order to comprehensively understand the long-term seismic activity of the whole country, we collected and analyzed historical diaries including descriptions of earthquakes throughout Japan. So far, we analyzed 14 records including Yuzawa City, Akita prefecture, (140.36°E, 39.05°N) and Kimotsuki Town, Kagoshima prefecture (130.94°E, 31.34°N). Moreover, we are also developing a geographical information system (GIS) that enables us to estimate the size of the earthquake by displaying the spread of the sensible points. In this presentation, we will report the development status of the database and introduce the spatiotemporal distribution of long-term seismic activity visualized on our GIS.