The northern Japan to southern Kurile trenches have been regarded as a typical subduction zone with spatially and temporally regular recurrence of great interplate earthquakes. The source regions were grouped into six segments by Utsu (1972; 1984). The Headquarters for Earthquake Research Promotion of the Japanese government (2004) divided the southern Kurile subduction zone into four regions and evaluated future probabilities of great interplate earthquakes. Besides great (M>8) interplate events, however, many large (M>7) interplate, intraslab, outer-rise and tsunami earthquakes have also occurred in this region.

We depict the space-time pattern of large (M>7) earthquakes along the Kurile trench, based on the relocated mainshock-aftershock distributions of all types of earthquakes occurred since 1913. The mainshock-aftershock distributions provides uniform data over a long period, because arrival-time data are available since 1910’s. We relocate hypocenters reported the ISC, ISS, and BCIS bulletins by using the HYPOSAT (Schweitzer, 2003) and the Modified JHD method (Hurukawa, 1995).

As a result, we found that the more complex feature of earthquake occurrence. Each region has been ruptured by a M8-class interplate earthquake or by multiple M7-class events. Great intraslab earthquakes occurred in 1958 and 1994. The 1915 and 1918 great earthquakes may have been intraslab events. Many outer-rise earthquakes and the 1963 and 1975 tsunami earthquakes occurred near the trench axis.