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On the Ansei-type and the Hoei-type of great Nankai trough earthquakes

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Seno (2012) proposed a new idea for the rupture mode and time series of great interplate earthquakes that have repeatedly occurred along the Nankai trough off southwest Japan. He characterized a fault plane of a great earthquake into a seismic-b.eq, a tsunami-b.eq, and a geodetic-b.eq, in which seismic waves, tsunamis, and crustal deformations are dominantly generated, respectively.

Among his various discussions, Seno compared seismic-b.eqs between the 1944 Showa-Tonankai, 1854 Ansei-Tokai, the 1707 Hoei and other earthquakes, using seismic intensity data and previous studies. As one of his main conclusions, Seno grouped historical great earthquakes into the Ansei-type or the Hoei-type, which has a seismic-b.eq similar to either of the Ansei (seismic-b.eq occupies E but not C in the Figure) or the Hoei (seismic-b.eq occupies C but not E jn the Figure) earthquakes. He interpreted that the Ansei-type earthquakes were the 684 Hakuho, 1096 Eicho, 1498 Meio, and 1854 Ansei earthquakes and recurred with about 400-year period, and that the Hoei-type earthquakes were the 887 Ninna, 1361 ko'an, 1707 Hoei, and 1944 Tonankai-1946 Nankai earthquakes and recurred with about 350-year period.

In this study, I examined Seno's (2012) idea on the Ansei-type and the Hoei-type carefully by means of historical seismology, and concluded that the grouping of historical Nankai trough earthquakes into the two types is difficult.

The figure shows a revised space-time recurrence pattern of the Nankai trough earthquakes after Ishibashi (2014).

Keywords: great Nankai trough earthquakes, historical earthquakes, recurrence pattern, Ansei-type, Hoei-type