

Pre-1703 Genroku earthquake estimated from coastal geology at the southwestern Boso Peninsula

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We conducted a drilling survey to detect the previous great Kanto earthquake to the 1703 Genroku earthquake at the Tateyama Plain, near the Sagami Trough. In this plain, coseismic uplift events to form the emerged marine terrace and bench were observed during the 1703 and 1923 Kanto earthquakes. Our drilling site was located on the beach ridge marking the coast line before the Genroku event. Considering the Holocene development of the Tateyama Plain (progradation of the strand plain closely relating to the coseismic uplift), emergence of this beach ridge would have a connection with the coastal uplift during the previous Kanto earthquake to the Genroku event.

The cores are composed of very fine-grained sand beds with marine shells (inner bay deposits) in their lower part and an alternation of sand and gravel beds (beach ridge deposits) in their upper part. Rapid sedimentary facies change from the lower to upper parts suggests the occurrence of uplift event. Alternating bed of gravelly sand with molluscan shells and clay is intercalated between the lower and upper parts of the cores. Possible source of this alternating bed is tsunami generated by the great earthquake that caused the coastal uplift. According to the ¹⁴C age determination, the coastal uplift event is estimated to have occurred somewhere between the 13th and late of 14th century.

Keywords: Kanto earthquake, Coastal uplift, Tsunami deposit, Paleoearthquake