

Tsunami deposits from Shimizu Plain, Shizuoka Prefecture

Konatsu Kobayashi^{1*}, Akihisa Kitamura¹

¹Shizuoka University

This study reconstructed the Holocene sedimentary environment and researched the distribution of possible tsunami deposits in Shimizu Plain, Shizuoka Prefecture from 11 sediment cores.

Based on the sediment and molluscan fossil records, the Holocene sediments are divided into four facies: lower sand (LS), middle mud (MM), upper sand (US) and uppermost sand (UMS) layers. Except for UMS, these sand and mud layers are interpreted as delta front and prodelta deposits in bay, respectively. UMS is interpreted as fluvial and dune sediments.

Transition from LS to MM occurred at 9500-8600 yr BP which corresponds to period of eustatic sea-level rise with 10-20 m. While transition from MM to US or UMS occurred after 4000 yr BP which Elevation and 14C dating of the upper limit of the marine deposits show that the total coseismic uplift has exceeded 20 m total interseismic subsidence during the last 8800 years.

Based on elevation and 14C age of marine deposits, coseismic uplift of AD 1854 Ansei-Tokai earthquake is estimated to be at least 1.5 m. This value confirms the coseismic uplift value in historical document.

Six event deposits were identified in sediments after 6000 yr BP when sea level reached and maintained its present elevation. These deposition ages are estimated to be about 200, 550, 1300, 3400, 4300 and 5600 yr BP. The youngest event deposit seems to be flood deposit. It is likely that the event deposit at 550 yr BP was caused by tsunami associated with AD 1498 Meio earthquake. The event deposit at 1300 yr BP may be formed by tsunami of either AD 684 Hakuho or AD 887 Ninna earthquakes. There is possibility that event deposit at 3400 yr BP correlates with any tsunami deposits reported from Shimizu Plain (3500 yr BP), in Lake Hamana (3300 yr BP) and coastal plain around the lake (3400 yr BP). Since the event deposits at 4300 and 5600 yr BP contain rip-up clasts, they are probable tsunami deposits.

Keywords: Shimizu Plain, tsunami deposits, Holocene, sedimentary environment