

Tsunami Deposits from Ohtsuchi Bay of Sanriku Coast, North Eastern Japan

Tsuyoshi Haraguchi[1]; Osamu Fujiwara[2]; Kunihiko Shimazaki[3]; Toshifumi Imaizumi[4]

[1] Geosci., Osaka City Univ.; [2] Active Fault Research Center, AIST, GSJ; [3] Earthq. Res. Inst., Univ. Tokyo; [4] Geography Sci., Tohoku Univ.

Holocene tsunami history was analyzed by using a drilling core obtained from the Ohtsuchi Bay on the Sanriku coast, Pacific side of NE Japan. The saw-tooth Sanriku coast line, facing the Japan Trench, is well known for repeated suffers from the historical great tsunamis. The worst tsunami damage in Japanese history, more than 20,000 fatalities, by the AD1896 Meiji Sanriku Tsunami (M 8 1/2) centered off Sanriku was recorded from this coast. However, the geological records of ancient tsunami such as tsunami deposits have been rarely reported from the Sanriku coast. Reconstruction of the pale-tsunami history including the recurrence interval is fundamental data for the tsunami disaster mitigation on the coast. The core, 24-meter long, obtained from a bay center of 10 m-deep is mainly composed of sandy mud excluding the basal gravel bed (core bottom reached SL-34 m). Sand and gravelly sand beds ranging from several to 200 cm-thick are intercalated in the core and denoted TS-22 to TS-1 in ascending order. Most of these coarse-grained beds have evidences of deposition from high-energy and density currents, basal erosion surface, rip-up clasts mixed mulluscan shells, inverse- and normal grading, and generally upward-fining sequence. Most likely origin of these event deposits is great tsunami, because the coring site is a deep and low energy bay floor isolated from major river mouth. Low sediment supply by river floods and small disturbance by wind waves at the drilling site are favorable for the preservation of tsunami deposits. Depositional ages of TS-1 to TS-22 were estimated from a depositional curve of the core based on ten ^{14}C ages of marine shells. Recurrence interval of 6 sand and gravel beds in the lower part of the core, TS21 to TS-16, is 500 to 800 years. Recurrence interval of the 15 event beds in the upper part of the core, TS1 to TS-16, is 100 to 150 years.