

Tsunami deposits from Sanriku coast NE Japan in late Holocene

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In northeastern Japan, the giant tsunami caused by the giant earthquake in Japan Trench subduction zone, devastated coastal areas in the Pacific Ocean. For example, 22,000 persons died by Meiji-Sanriku tsunami in 1896. The areas have been devastated by Cascade tsunami in 1700 and Chile tsunami in 1960.

This project aims to examine the tsunami history and the recurrence frequency of tsunami events in the areas in Japan Trench of Pacific Ocean using paleotsunami deposits from coastal marsh and bays in Sanriku coast, northeastern Japan.

This project centers on identifying paleotsunami deposits in cores and geoslicers from Miyako-Hanokohama Otsuchi-Kikiri marsh, Otsuchi Bay, Ofunato-Goisihama, Rikuzentakada -Takadanomatsubara, and Kesenuma in Sanriku coast and dating of these paleotsunami deposits.

These areas strata except the Rikuzentakada have been preserved for approximately 6000 years. Several subsurface sand and sand-gravel layers interbedded in peat dominated sediments in Miyako-Hanokohama, Otsuchi-Kikiri marsh, Ofunato-Goisihama, and Kesenuma, on the other hand, these interbedded in mud dominated sediments in Otsuchi Bay.

The deposits from these areas provided us the following knowledges.

1). Part of tsunami deposits from Otsuchi Bay may correspond to the 869 AD Jogan Sanriku-oki Tsunami event M8.3, the 1611 AD Keicho Sanriku-oki Tsunami event M8.1, and the 1896 AD Meiji-Sanriku Tsunami event M6.8. Part of tsunami deposits in Rikuzentakada may correspond to the 1960 AD Chile tsunami event M9.5, too.

2). In the stratum which shows 2000-6000 years of the past, tsunami deposits from more than 4 areas that agree in dating are 5 layers, and those one from more than 3 areas that agree in dating are 7 layers. The recurrence interval of tsunami event from these areas is almost 500 to 700 years.

3). The inside of the stratum in 2000 years of the pasts from the land which excludes Rikuzentakata could not be found tsunami deposits.

4). Tsunami deposits from Otsuchi Bay that can be compared with the tsunami history in Japan Trench of the Pacific Ocean have been preserved. This result can tell us that tsunami deposits study in bay areas may provide us more useful information.