

Recent studies of tsunami deposits along the Japan Sea coast

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Extensive research has been conducted on tsunami deposits along the Japan Sea since the 2011 Tohoku Earthquake and tsunami. The main purpose of these researches are to define the scale of largest tsunami in the region, which is most important information for tsunami hazard mitigation. Especially in regions along the eastern margin of the Japan Sea, confirmation on fact of past tsunamis is required, because there are historic records of some large tsunamis.

A survey of tsunami deposits by the large tsunami in AD1741, Oshima-Oshima, southwest Hokkaido, was considered as a higher priority in Hokkaido region. The deposits of 1741 tsunami, and also older event deposits of possible tsunamigenic have been recognized in peat narrowly distributed in small valley plains and in humic soils covering the surface of marine terraces. Organic-walled microfossils (dinoflagellates and linings of foraminifer) were useful to define marine source of sandy deposits.

Large numbers of possible tsunamigenic deposits have also been reported from the Tohoku and Niigata regions, although sufficient evidences for the origin of those deposits have not been proposed. Many of the deposits were identified in muddy sediments on swales of coastal dunes and bottom sediments of coastal lakes/ponds. Some deposits are correlated chronologically with historic tsunamis in AD1833, AD1092, and AD850.

In the future step, we have to correlate tsunamigenic deposits correctly to determine wave source regions of each events. Precisely reconstructed information about tsunami recurrences will be enable to evaluate tsunami risk of an individual region. As one example, we will show the wave source area of the 12th century tsunami event along the southwestern Hokkaido, which have been determined by tsunami simulation and the distribution of tsunami deposits.

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