

Characteristics of event deposits and their source in Sekine-hama, Mutsu city, Aomori prefecture

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Tsunami deposit research is progressing in Japan after the 2011 Tohoku-oki earthquake. Especially, along the Pacific coast in the Tohoku region, many event deposits related with paleo-tsunamis were found by geological surveys. Their survey sites were concentrated from the Sanriku coast to Sendai plain (Sawai et al., 2007; Shishikura et al., 2007; Ishimura and Miyauchi, 2015, 2017; Goto et al., 2015; Inoue et al., 2017; Takada et al., 2016) and, but the number of surveys in the northern part of the Sanriku coast and southern part of the Sendai plain is small due to the limitation of the appropriate site for tsunami deposit research. This study reports the event deposits found at Sekinehama, Mutsu city, Aomori prefecture, which is the northernmost part of the Pacific coast of Honshu Island.

Our study site, Sekinehama, is located between Omazaki and Shiriyazaki and late Pleistocene marine terraces and sand dune were distributed near the coast. In the 2011 Tohoku-oki earthquake, tsunami runup height of 2 to 6 m was reported (The 2011 Tohoku Earthquake Tsunami Joint Survey (TTJS) Group (<http://www.coastal.jp/ttjt/>)). The outcrop is exposed about 50 m far from coastline and its height is 2 m. Sampled event deposits were used for grain size analysis. Moreover, we conducted radiocarbon dating (five samples) and tephra analysis (one sample).

As a result, we found 18 sandy event deposits interbedded within the soil, marsh, and marine sediments. One of them is the Baegdusan-Tomakomai tephra (AD946; Oppenheimer et al., 2017) including a small number of volcanic glass shards originating in Towada-a tephra (AD915; Machida and Arai, 2003). We estimated the origin of sands in event deposits by comparing with the grain size distribution of modern beach and sand dune sediments, resulted in that 14 event deposits are composed of beach sands. Thus, the source of these 14 event deposits is beach sediments and this indicates that they are transported by a kind of coastal events (e.g., storm, high tide, tsunami). Additionally, some of them showed sedimentary structures (erosional contact and lateral distribution) like tsunami deposits. Thus, we thought that some of them, at least, are tsunami deposits. As for radiocarbon dating, we are measuring now, and thus will show the event ages in our presentation.

Keywords: Event deposits, Shimokita peninsula, B-Tm tephra