Tsunami traces in peat layers at the Shiomi-gawa Lowland in Akkeshi Town, eastern Hokkaido

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Many earthquakes and tsunamis occur along the Pacific coast of eastern Hokkaido. Akkeshi Town, situated between Kushiro City and Nemuro City, is famous for old Kokutaiji Temple, which was built in 1804. In the Nikkanki, an official record, and timber remnants from this temple described the 1843 Tokachi-oki earthquake and tsunami. In this study we investigated lowland, ca. 2.1 m above sea level, in front of Kokutaiji Temple. With help of Holocene volcanic ashes that were previously reported from eastern Hokkaido, we can correlate three ash layers just below the surface as Ta-a (1739), Ko-c2 (1694), and Ta-b (1667), respectively. An ash layer at 27 cm below this layer Ta-b may be correlated with B-Tm (ca. 1,000 yrs BP), and ash layer 58 cm below this layer B-Tm may be correlated with Ta-c2 (ca. 2,500 yrs BP). Consequently, we can estimate that the peat was accumulated during past 3,500 years. From the present diatom analysis, the following estimation can be pointed out. (1) Fresh water species such as Pinnularia viridis, Navicula elginensis and terrestrial species such as Hantzschia amphioxys, Pinnularia borealis were are predominant in almost all peat samples, and from sand layers marine species such as Paralia sulcata, Cocconeis scutellum, Nitzschia granulata are found. (2) The individuals from the sand layers were are extremely fewer than those from peat. From these facts we can conclude that the sand layers are marine event sediments, which are derived from the ocean. If we compare the stratigraphy of the tsunami events with those reported from Kiritappu Marsh and Harutori Lake, tsunami events of Ts3 to Ts10 are clearly included in our samples. Thus, there were nine giant tsunamis during past 3,500 years at Akkeshi area, equal to other Pacific coast areas of eastern Hokkaido.