

## **Reconstruction of the shoreline in the 13th and 17th century at Kiritappu marsh, eastern Hokkaido, Japan**

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In this study, we reconstruct position of shorelines at the time of the 13th and 17th century large tsunami events to reevaluate unusually great earthquakes in southern Kuril trench. Deposits of prehistoric tsunamis generated from the Kuril trench have been found at eastern Hokkaido along the Pacific coast. It is known by the previous study that the youngest large event occurred in the 17th century and the second one occurred in the 13th century. Such large tsunamis are considered to be generated from unusually great earthquakes in the Kuril trench. Fault models of the 17th century large tsunami were estimated by comparing distribution of tsunami deposits and computed inundation area of tsunami by previous studies. The previous studies, however, have not considered shoreline progradation during the last several hundred years in their numerical simulations of tsunami inundation. Kiritappu marsh in eastern Hokkaido, a beach ridge plain, is one of the most important area to evaluate prehistoric tsunami inundation. In this marsh, the 13th and 17th century tsunami deposits are distributed beneath marshes that formed between beach ridges. In Hamanaka and Biwase areas in Kiritappu marsh, we traced both of the tsunami deposits continuously along the leveled transect seaward from inland and identified where tsunami deposits vanished. Because inter-ridge marshes have been appended seaward as shoreline prograded, disappearance of tsunami deposits implies that the paleo-shore existed around the nearest landward beach ridge. The paleo-shore on the transect was then used to reconstruct shoreline based on geomorphological correlation by aerial photograph of the 1940s, map of the 1920s (Geospatial Information Authority of Japan (GSI)), and the coastline about 200 years ago (digital Inou map). As a result, the shoreline of the 13th and 17th century, was located almost the same place, was estimated 200–300 m inland from the present one. Then the DEM data provided by GSI was modified for numerical simulation of tsunami considering the shoreline of the 13th and 17th century in Kiritappu marsh. For estimation of fault models of the 13th and 17th century unusually great earthquakes, in the future, we will compute inundation of these tsunamis using the estimated topography around the coast.