

## Formation age of mire on marine terraces in Nemuro Peninsula, Hokkaido, Japan

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Large-scale mires are distributed on the marine terraces in Nemuro Peninsula, eastern Hokkaido. These mires are different in scale and morphology from mires / wetlands at the alluvial lowland of the floodplain in the valley and coastal lowland. The main part of the Habomai mire in the eastern part of the Nemuro Peninsula is located on several marine terraces at an altitude of about 20 to 40 m, and part of mire is hilly and sloping. There are no rivers in the Habomai mire, and erosional valleys are distributed the marginal area of the mire. In the Habomai mire, peat layers are known to be distributed on slopes, and historical botany has been studied (Igarashi et al., 2001; Momohara et al., 2009). However, the characteristics of peat covering on terraces and their relationship with the geomorphological development are unknown. The purpose of this study is to clarify the formation age and the geomorphological development of the Habomai mire.

Field surveys were conducted on the Habomai mire and the marine terraces of the Nemuro Peninsula. A cross-sectional surveys of the line transects were performed in the Habomai moor, and the sediments collected by the peat sampler, boring stick and borehole cores. And the marine terrace deposit were sampled at several outcrops around the Habomai mire. Tephrochronology, 14C dating and pIRIR dating were applied to date mire and terrace sediments.

In the Habomai mire, it was observed that the peat layer not only covers the gently sloping terrace surface, but also covers the buried depressions and terrace cliffs. In addition, the sedimentary environment often changes from wetland to peatland after the tephra deposition from Mashu volcano in the Middle Holocene (Ma-f<sup>-j</sup>). Around the locations where the buried depression and the terrace cliff, the peat layer above the Ma-f<sup>-j</sup> tephra is relatively thick, and the buried peat layer is intermittently deposited below. The Habomai mire is considered to be a blanket mire because the peat layer covers not only the sloped terrace surface but also the terrace cliffs. As a result of 14C dating, peat deposition started before the LGM. Since then, peatland environments have occurred intermittently at restrictive areas, such as buried depressions and terrace cliffs. From the results of pIRIR dating at the marine terraces around the Habomai mire, it is considered that the main part of marine terraces was formed during the Middle Pleistocene, and that periglacial environment contributed after the LGM. Therefore, it is considered that 1) the terrace surface became gentler due to solifluction during the last glacial period and the previous cold period, 2) subsequently, peat deposition began to accumulate locally at the base of terrace cliffs and buried depressions from an older age, 3) after that, peat deposition crawls up from the depression to the flat area, forming the present blanket mire.

Keywords: mire, marine terraces, 14C dating, pIRIR dating, tephra, Nemuro peninsula