

Buried gravelly beach ridge and fluvial deposits in Siraoi-Yufutu coast, south Hokkaido, Japan

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Beach gravel layers and the overlying fluvial deposits of Shiraoi-Yufutsu coastal plain in the Late Holocene were discussed based on data by AMS14C datings, tephrochronological, sedimentological and paleoenvironmental analyses.

This narrow and elongate plain is located along the south and east margin of Tarumai volcano and the upland of Shikotsu pyroclastic flow deposit (Spfl: 4.0ka).

After the stage of the Holocene transgression, when the south and east margin of the upland area was eroded to form the gravelly coastal plain (Ikeda et al., 1995), fluvial deposits rich in pumice mainly from Tarumai volcano and peat deposited over the plain. In the previous report, topographical and environmental history was discussed using gravel pits in Shiraoi plain (Suzuki et al., 2006). In this study, we had topographical and geological survey using 7 deep gravel pits from Shiraoi to Tomakomai.

On the high and wide walls of each gravel pit, many tephra layers (from Usu volcano, Tarumai volcano, Komagatake volcano and distal Beito-shan volcano at Korean Peninsula), peat layers, and some channel deposits composed of pumiceous sand and gravel from Tarumai and Spfl were recognized. Especially, such tephra give us useful ages as Ta-c: 2.8ka, B-Tm: 1ka, Ko-d: AD1640, Us-b (pumice): AD1663, Us-1663 (ash): AD1663, Ta-b: AD1667, Ko-c2: AD1694 and Ta-a: AD1739, along with AMS 14C datings. Following results were clarified based on the pollen, diatom, phytolith, tephra and sediment analyses.

1) In all of seven gravel pits, black beach gravel usually sandy gravel layers were found under fluvial deposits 4 to 6 meters thick. These layers are composed of chert, hornfels, serpentinite, other plutonic rocks and metamorphic rocks, supplied from Hidaka mountains of the central Hokkaido. The topography of gravelly beach ridges composed of the gravel layers can be reconstructed, the height ranging from about 3 meters at the top to -1 meters at the lowland above sea level.

2) Age of the buried beach ridges is determined as 3.0ka by the AMS 14C datings of woods, and by Ta-c tephra in the gravel pits. These buried beach ridges in Siraoi are corresponding to those of the west Yufutsu plain, which was formed in 3.0ka-0.3ka (Moriwaki, 1982).

Shiraoi-Yufutsu plain were formed by flood sediments and peaty sediments after 3.0ka, covering the beach ridges. Five events of channel formations and quick deposition were recognized; 2.8-2.5ka, 2.5-2.0ka, 1.2-1.0ka, 1.0ka and 0.6-0.3ka. Sedimentation of peat advanced other than the time of flood events. These fluvial deposits consist of local volcanic rocks without Hidaka origin gravels. After Holocene transgression, development of Siraoi-Yufutsu plain were affected by volcanic activity and climate change.

References

- K. Ikeda, T. Hasaka, and T. Murase (1995): Holocene sediments and topography of the Yufutsu plain in Hokkaido. *Bull. Geol. Surv. Japan*, 46(6), 283-300
- M. Suzuki, K. Endo, S. Suzuki, K. Nakamura (2006), Late Holocene Topographical Development in the Shiraoi Coastal Plain, south Hokkaido, Japan (Q127-002), Abstracts, Japan Geoscience Union Meeting (CD-ROM), 2006, Q127-002
- H. Moriwaki (1982): Geomorphic development of Holocene coastal plains in Japan. *Geogr. Rep. Tokyo Metropol. Univ.*, 17, 1-42