

Geologic research of the Upper Pleistocene to Holocene in the Ishikari Plain, Hokkaido, Japan

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Radiometric carbon dating, and analyses of diatoms, pollen and volcanic ash were carried out to clarify the stratigraphy and paleoenvironment of Late Pleistocene to Recent sediments within geologic cores obtained from seven drillholes (SSC-1, 50 m depth; ISH-5, 60.31 m depth; TKH, 36 m depth; H16B-7, 44 m depth; H16B-3, 40 m depth; MHR-1, 18 m depth; and YUB-1, 28.5 m depth) sunk in the Ishikari Plain, located in lower reaches of the Ishikari River. Analyses of diatoms in cores H16B-7 and H16B-3 reveal that a large amount of seawater flowed into the brackish Paleo-Ishikari Lake during the middle Holocene. A geological horizon that contains the maximum ratio of marine to other diatom species is inferred to represent the stage with the highest sea level (ca 6,000 yBP) of the Jomon transgression. During this stage, the brackish lake (dimensions of 30 km east-west by 20 km north-south) was situated east of the Momijiyama sand-dune. An analysis of volcanic ash shows that the Toya ashfall, erupted at ca 113 ka, lies between 3.52 and 33.39 m below sea level within core SSC-1, indicating in turn that a sedimentary plain, which formed during the last interglacial stage (MIS5e), lies beneath the Ishikari Plain.

Keywords: stratigraphy, paleoenvironment, Upper Pleistocene, Holocene, Ishikari Plain, diatom analysis