Stratigraphic and sedimentologic analysis on the GS-HTB core drilled at Kawashimo, Tobetsu, Hokkaido

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The Ishikari Lowland is situated at the junction between the Northeast Japan Arc and Chishima Arc. Northern area of the lowland is an alluvial plain of the Ishikari River. The boring core (GS-HTB) was drilled at Kawashimo, Tobetsu, where the 'Chuseki-so' (the latest Pleistocen to Holocene incised-valley fill deposits) is expected to have large thickness of 50-60m based on the compilation of previous cores (Kawakami et al., 2008). The site is located in a middle part of the Ishikari incised-valley system (landward of the Momijiyama sand dune preserved at the Holocene highstand shoreline).

The GS-HTB core is 55m in length, and a lowest part of the core (below 50.5m depth) is Late Pleistocene. A succession above the 50.5m in depth is concordant with the stratigraphy of the general 'Chuseki-so', namely it is interpreted to consist of fluvial to shallow marine succession as follows, in ascending order: Unit A: fluvial channel fills (45-50.5m in depth), Unit B: flood plain deposits (25-45m), Unit C: transgressive sand sheet (23-25m), Unit D: bay deposits (9-23m), and Unit E: fluvial channel fills to flood plain deposits (2-9m). Patterns of magnetic susceptibility and attenuated gamma ray intensity measured by MSCL correlate to the stratigraphic/sedimentary units. The pattern of gamma ray intensity shows that several coarsening-upward (2-5m thick) to fining-upward (1-3m thick) successions developed cyclically in the Unit B. Some sand beds in the unit show inverse-grading. The top of the Unit B shows coarsening-upward trend, and is truncated by the Unit C, which has a sharp basal boundary covered by cross-laminated sand. The main part of the Unit D consists of thick massive mud, whereas the basal and uppermost parts of the unit consist of bioturbated silty mud. Vertical variations of grain-size composition and water content show fining-upward trend of the Unit D, and the finest interval is at around 17m depth. Two coarsening-upward cycles are recognized above the finest interval.

Fifteen radiocarbon ages of plant debris are obtained. The deposits beneath the Unit A show 31,530+-300yBP (conventional age). The Unit B yields ages of 9,970+-50yBP at the basal part and 8,350+-50yBP at the uppermost part. The Unit C shows age of 8,060+-50yBP. The age at the upper part of the Unit D (11m depth) is 6,520+-50yBP, whereas ages of the middle to lower part of the unit ranges from 9,340+-50yBP to 8,230+-50yBP, which are older than the ages of the lower Unit B and Unit C. Seeds sample separated from peat bed of the Unit E at 6m in depth yields 5,770+-70yBP, although the plant debris from the basal part of the unit yields older age of 6,730+-50yBP than the lower unit.

We will present preliminary interpretation of the sedimentary system of the 'Chuseki-so' in Ishikari Lowland on the basis of a stratigraphic correlation of the GS-HTB and previous cores.