

Kersilö database and its applications within the ice divide zone of Finnish Lapland

A.K. ÅBERG^{1*}, V.-P. SALONEN¹

¹ *Department of Geosciences and Geography, PL 68 (Gustaf Hällströmin katu 2b), 00014, University of Helsinki (*correspondence: annika.berg@helsinki.fi)*

The remains of sediments originating prior the last glaciation are abundant within the ice divide zone of Finnish Lapland. Rautuvaara in Kolari and Sokli in Savukoski are well studied key sites for Weichselian stratigraphy, but Sodankylä area in between is less well known in this respect. However, it can be suggested, that the area might bring some additional information, especially related to the history of fluvial sedimentation, because the flat-lying plateau is occupied by large rivers and their floodplains even today.

The main target of the study was to gather and organize all existing sediment data of Kersilö area (20 x 18 km) as a database. Kersilö database includes over 2700 observations. Database consists of targeting till geochemistry, overburden thickness, Auger-drillings, percussion drillings, test sites from GSF, peat investigations, ground-water wells and national drill core archive data. The database is part of a more detailed GIS based infra model, where additional 2200 drillings were used to model the bedrock surface. The infra model will include 3D model of surficial deposits and solid bedrock within a detailed 3 x 3.5 km model area.

The surficial deposits in Kersilö area consist of at least 3–4 till beds interlayered by sorted sediments. The average thickness of surficial deposits is 5 m and 8 m in detailed model area near Kärvasniemi. The thickest sediment layers in Pahalaksonmaa reach over 40 m. Bedrock topography varies 190–148 m a.s.l in detailed model area and 229–142 m a.s.l. in whole area. The mean altitude of whole area is 190 m. The mean altitude of the bedrock of the detailed area is relatively lower being 178 m a.s.l. The thickest sediment deposits as in Kärvasniemi and Pahalaaksonmaa lie on the depressions of the bedrock. Some of the fractures of bedrock are visible in the bedrock model. The bedrock model indicates sedimentation basin of Kärvasniemi area might be connected to depression of west corner of Viiankiaapa mire and to Pahalaaksonmaa. 3D model will give a basis for developing a hydrostratigraphical model to explain the ground water – surface water interactions in the area.