Geophysical Research Abstracts
Vol. 14, EGU2012-9811, 2012
EGU General Assembly 2012

Aquifer Properties in Hepokangas, Northern Finland

M.Sc. Pihlaja
Geological Survey of Finland, Northern Finland Unit, Rovaniemi, Finland (jouni.pihlaja@gtk.fi, +3582055014), www.gtk.fi

Hepokangas study area is located in northern Finland, app. 60 km north-east of the city of Oulu. It consists of an esker ridge which ranges in elevation from 95 to 105 m.a.s.l. Consequently, all Quaternary deposits in the area have been influenced by erosional and depositional processes during two Baltic Sea stages (Ancylus Lake and Littorina Sea). Therefore, raised beaches are found on the esker slopes and fine grained sediments on the lowlands.

The studied aquifer, the Hepokangas esker is part of an discontinuous chain of eskers which, in total, is about 100 km long and is elongated from north-west to south-east. The direction indicates that the esker was deposited by the melt waters during the latest phase of Weichselian glaciation. The primary part of the esker is located in the western segment of the area and a delta-like expansion of an esker is in the eastern part of the study area .

Level of the ground water table (GWT) was measured at 14 ground water pipes which were located in varying parts of the Hepokangas formation. Ground penetrating radar (GPR) surveys were conducted on the primary part of the esker in order to determine internal structures and estimate permeability of the formation. Ground water flow directions were interpreted based on these measurements.

The GWT varies from 91.91 to 97.98 m.a.s.l. Since the Hepokangas formation is surrounded by mires the height of the GWT decreased towards them. There was a water pumping station on the primary part of the formation, but no clear effect to the GWT could be seen to be caused by that. From the GPR results, some locations of the coarse grain sediments with high permeability were found.