



POLENET/LAPNET - a multidisciplinary seismic array research in Northern Fennoscandia during the International Polar Year 2007-2009

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The main target of the POLENET (Polar Earth Observation Network) project consortium is organisation of geophysical observations in polar regions aiming at studying of the polar geodynamics, the earth's magnetic field, crust, mantle and core structure and dynamics. POLENET has been endorsed as a core activity of the International Polar Year (IPY) 2007-2008. POLENET/LAPNET is a sub-project of the POLENET related to seismic studies in the Arctic regions. Its main target is to carry out a temporary seismic array research on the territory of northern Fennoscandia (Finland, Sweden and Norway). The array will consist of 35 temporary stations and permanent broadband stations in northern Finland, Sweden and Norway. It will register teleseismic, regional and local events during 2007-2009. The research aims to obtain a 3D seismic model of the crust and upper mantle down to 670 km (P- and S-wave velocity models, position of major boundaries in the crust and upper mantle and estimates of seismic anisotropy strength and orientation) in northern Fennoscandian Shield that will be merged to the seismic model of the previous SVEKALAPKO array research. The 3-D model can be used to define spatial distribution and depth of the Archaean lithosphere in the Fennoscandia for the purpose of diamond prospecting. The 3-D model of the crust and upper mantle will be also used to improve registration and location of local earthquakes and understanding of mechanisms of local seismicity in northern Fennoscandia. The study will also contribute to the POLENET multidisciplinary research by collecting waveforms of seismic phases travelling through the inner core and icequakes in Arctics. The waveform data will be compiled into a database that will be freely available to world geophysical community and interpreted by different techniques.