



LAPNET- a multidisciplinary geophysical experiment in northern Fennoscandia during IPY 2007-2008

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LAPNET will be a multidisciplinary geophysical experiment in northern Fennoscandian Shield during the International Polar Year 2007-2008. The project will be a part of POLENET (Polar Earth Observation Network) project consortium, whose main target would be organisation of long-term observational network in polar regions aiming at studying of the polar geodynamics, the earth's magnetic field, crust, mantle and core structure and dynamics. The POLENET/LAPNET network will be organised on the base of existing GPS, superconducting gravimeter and broadband seismograph stations in Finland. Activities will include enhancement of the existing network of permanent broadband seismic stations in northern Finland and organisation of long-term collocated GPS, gravimetric and seismic measurements. The measurements can be used to study the Earth's inner core and glacial rebound in the Fennoscandian Shield, to improve our understanding of displacements and stresses for stable cratonic regions and mid-continent deformations and to investigate intraplate earthquake mechanisms. Since the GPS, gravity measurements and seismic instrumentation share infrastructure, the cost of multidisciplinary observation network is lower than organisation of separate networks. LAPNET activities include deployment of a temporary broadband seismic array in the territory of northern Finland. Its main target will be collecting seismic waveforms that travel through the inner core. The waveform data will be compiled into a database and interpreted by various techniques. The other targets of the array experiment will be: 1) to obtain the 3D structure of the crust and upper mantle in northern Fennoscandian Shield by a variety of seismic methods (body wave tomography, receiver functions, surface wave study, seismic anisotropy study, joint interpretation) 2) to improve registration and location of local earthquakes in Finland.