

# The EUROPROBE SVEKALAPKO project

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SVEKALAPKO is one of the 5 key projects of EUROPROBE. Scientists from about 70 institutes in 18 European countries join forces to study the Archaean and Palaeoproterozoic evolution of the Baltic (Fennoscandian) Shield. The project started its work in the later part of 1995 and is planned to continue at least until the end of 2000.

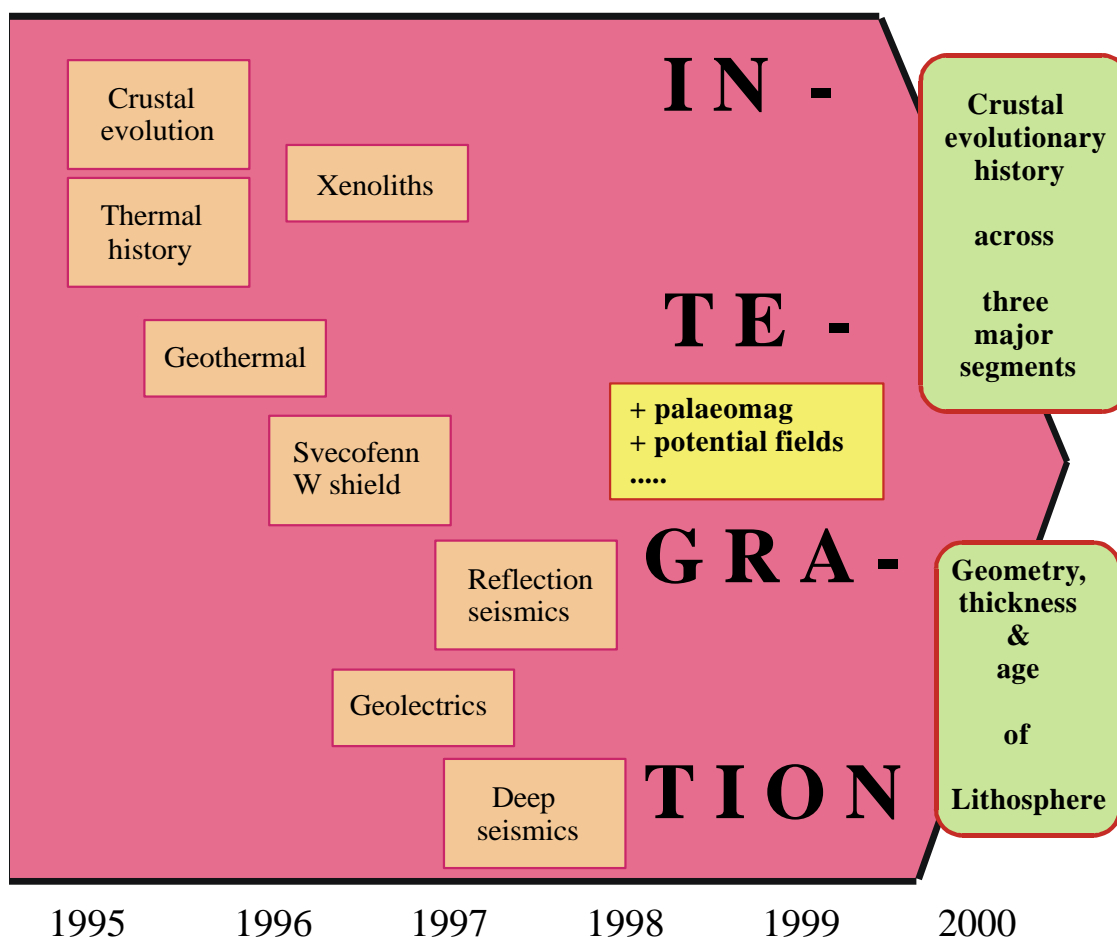
The major aims are

1. to study the geometry, thickness and age of the lower lithosphere and the disposition of major lithospheric structures in the Shield and
2. to refine the crustal evolutionary history along a transect through three major crustal segments: two contrasting Palaeoproterozoic orogens, Svecofennian and Lapland-Kola, and the intervening Karelian craton.

Key experiments of the 10 subprojects of SVEKALAPKO include among others deep seismic tomography, seismic reflection profiling, electromagnetic array studies, geothermal modelling as well as geological mapping, analysis and dating. The core group has care of the 11th subproject, integrating data and results from all subprojects. The core group (SSC, Scientific Steering Committee) of SVEKALAPKO consists of the project leaders, J Stephen Daly (Dublin) and Sven-Erik Hjelt (Oulu), and J. Ansorge (Zürich), V. Balagansky (Apatity), P. Heikkinen (Helsinki) and S. Kostuchenko (Moscow). Detailed project research plan and subproject descriptions can be found in the EUROPROBE "brochure" and at the provisional SVEKALAPKO home page:

<http://babel.oulu.fi/Svekalap.html>.

## EUROPROBE / SVEKALAPKO



The geological, geothermal and geoelectricity subprojects have operated at full capacity since late 1995. The research has focused on (a) the Archaean evolution and reworking of the crust in the Karelian part of the Shield, (b) the boundaries between Proterozoic and reworked Archaean rocks, (c) subduction-related magmatism and tectonic structures of Proterozoic age, (d) crustal and upper-mantle xenoliths and (e) Palaeozoic magmatism and its influence on lithospheric structures in Kola and the White Sea area. Field work, analysis of geological, geochemical, geothermal and age determination data have already given new insight into the tectonic structure of the Kola region and the geodynamics of the whole Shield.

Two geophysical key experiments aimed at determining the interrelations between the exceptionally thick crust, the lithosphere and the asthenosphere will be performed in 1998. Since late May, 50 long-period magnetotelluric stations together with 20 semi-permanent IMAGE-stations are recording the time variation of the Earth's geomagnetic field. This BEAR-subproject will obtain new details on the conductivity of the lower crust and lithosphere beneath the central parts of the Baltic (Fennoscandian) Shield (see following report by Toivo Korja).

In August 1998 about 60 broadband and 70 short-period seismic stations will be deployed to cover the transition from Palaeoproterozoic to Archaean basement regions where the thickest crust of the shield is found. Most stations will be operated until April 1999

in order to obtain a detailed tomographic picture of the lower crust and the deep lithosphere below the centre of the Shield. Of special interest will be the question whether a transition from lithosphere to asthenosphere can be observed in this area (see report by Roland Roberts in this issue).

Three supporting projects involve co-operation between the major geoscientific organisations in the SVEKALAPKO research area. The progress in reflection seismics has been slow because of financial problems involved. The level of funding from sources external to the participating institutions has been reasonable steady both in 1996 and 1997 at a level of 550 - 700 kECU. The funding level for 1998 is at least double, because of the large electromagnetic sounding and seismic tomography experiments.

Altogether 33 scientific articles were published or accepted and more than 220 papers were presented at scientific meetings in the time period 1996/10 - 1997/11. During the successful 2<sup>nd</sup> SVEKALAPKO workshop (27. - 30.11.1997, at the Lammi Biological Station, Finland) 71 new posters were presented in addition to 7 oral (invited) talks. The meeting focussed on 6 themes, palaeomagnetism, geochronology, alkaline magmatism, crustal structure and composition, exposed deep crustal sections and integrated modelling. In addition extensive discussions and planning of fieldwork for 1998 took place. The next SVEKALAPKO workshop will be arranged in the St. Petersburg area in November 1998.

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## MOSCOW EUROPROBE CENTRE

EUROPROBE has an office in Moscow. Dr. Nadja Timofeeva is taking care of EUROPROBE logistics in Russia, including help for visitors from the west (airport, hotel accommodation, domestic travel etc.). The office is located at

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