Geometry and Evolution of the Northern Fennoscandian Lithosphere - the Europrobe SVEKALAPKO Project.

[1]DALY, J.S., [2]Hjelt, S.-E., and SVEKALAPKO colleagues. [1]Department of Geology, University College Dublin, Belfield, Dublin 4, Ireland; [2]Department of Geophysics, University of Oulu, Oulu, FIN – 90401 Finland

The Europrobe SVEKALAPKO project is investigating the geometry, age and evolution of the lithosphere of the northern Fennoscandian Shield encompassing the SVEcofennian and KArelian provinces and the LAPland-Kola orogen. The region comprises two contrasting Palaeoproterozoic orogenic belts – the predominantly juvenile accretionary Svecofennian orogen in the south and the collisional Lapland-Kola orogen in the north – together with the intervening, partially reworked, Karelian "craton". Two major geophysical experiments – teleseismic and geoelectromagnetic – are seeking to elucidate the nature of the lithosphere-asthenosphere boundary under the central part of the Shield including a highly anomalous region of very thick (>55 km) crust which exhibits minimal topographic expression. Key questions include the extent to which the lithosphere geometry reflects variations in the crustal structure and evolution; the 3-D geometry and subsurface continuation of major tectonic boundaries; the origin of the anomalously thick crust; as well as the dynamic evolution of the Shield and implications for metallogenesis. 12 task groups, each involving collaboration between western and former Soviet Block partners, are employing a wide range of techniques including seismic reflection profiling, deep seismic tomography, electromagnetic array studies, geothermal modelling, as well as geological mapping, geochemistry, metamorphic PTt investigations and geochronology.