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Crustal Architecture along BABEL and FIRE profiles – Insight in the Growth of the Svecofennian Orogen, Fennoscandian Shield

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Paleoproterozoic Svecofennian orogen forms the Paleoroterozoic core of the Baltic/Fennsocandian Shield in Northern Europe. The orogen is characterized by LP- HT metamorphism and voluminous granitoid magmatism that usually develop in transitional to plateau stages of collisional orogenies. Deep seismic reflection profiles BABEL [2] and FIRE [3] have been reinterpreted using PURC concepts: prowedge, retrowedge, uplifted plug, subduction conduit and elevated plateau [1].

BABEL profiles image a transitional orogen with several nuclei displaying prowedge-uplifted plug-retrowedge architecture above paleo-subduction conduits. Prowedge and -continent are on the south-southwestern side and retrowedge and -continent on the north-northwestern side. This implies a long-lived southwesterly retreating convergent margin, where transitional accretionary orogens have developed.

FIRE1-3 profiles images a hot orogen with a pronounced super-infra structure[4], typical of an elevated plateau stage, below the Central Finland Granitoid Complex. Large volumes of granitoid intrusions suggest large scale melting of the middle and/or lower crust. Reflection structures, analogue modeling [5] suggest midcrustal flow. The plateau is flanked by prowedges that are characterized by HT-LP migmatite belts. The Svecofennian orogeny has progressed to an elevated plateau stage in the thickest core of the orogen, west of the arc-continent collision zone.

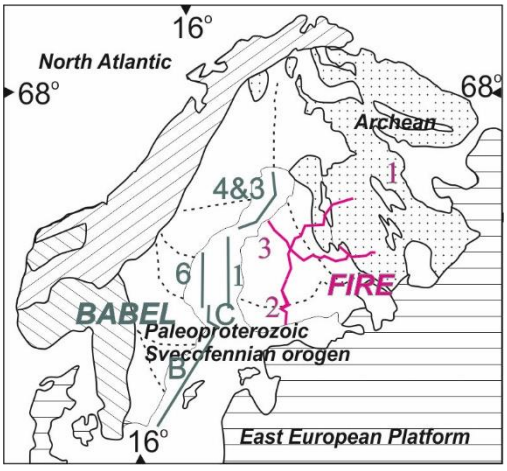

Figure 1: Location of the deep seismic reflection profiles used in this paper.

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