



Tectonic stacking and collapse of the Svecofennian crust along FIRE profiles

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The *FIRE1* and *3* deep seismic reflection profiles cross over a major Paleoproterozoic plate boundary in the Fennoscandian Shield – the Svecofennian – Karelian suture zone, where Archean Karelian craton and its cover have been juxtaposed with the Paleoproterozoic Svecofennian island arc rocks during the Svecofennian Orogeny, c. 1.9 Ga ago.

The crust along FIRE 1 and 3 belong to three tectonic domains: Archean nucleus, A-P boundary zone and Proterozoic Central Finland. During continental accretion Archean and Proterozoic blocks and volcano-sedimentary were thrust sequentially on the E-NE onto the Archean Nucleus. The scale of thrusting varies from less than 1 km to 10-20 km thick stacks where the deformation is concentrated mainly to the block boundaries.

In the collision, also the Proterozoic Central Finland (Keitele) was thickened due to westward stacking of 25 km thick crustal slices. Gravitational collapse took place in the upper parts of the continental stack and it is displayed as shallow, upper crustal extensional structures (3-8 km) cross-cutting the collisional structures.