



Savo Arc-Karelian continent collision – evidence of Paleoproterozoic continental growth in Fennoscandia from FIRE profiles

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The deep seismic reflection data from *BABEL* and *FIRE* profiles indicate that the Karelian margin was a long live margin (2.0-1.8 Ga) on to which island arcs and microcontinents accreted to - causing temporary changes in the arc geometries, accretionary episodes and westward growth of the continent during Svecofennian Orogeny. After isostatic balance was achieved in gravitational collapse the structures froze and thus they have been protected from subsequent deformation. The paleoplate boundaries are marked by thicker crust, lower velocities, lower vp/vs ratios, deep conductors and massive sulphide deposits.

The E-W running FIRE 3 Profile displays the accretion and deformation of Savo arc in between converging Karelian continent in the east and Keitele microcontinent in the west. The middle crust displays a series of ramp anticlines that gradually change to thrust wedges that grow steeper and become near vertical close to the arc-continent suture. Some of the shortening was taken up by near vertical shear zones of the Raahe-Ladoga wrench fault. The lowermost crust displays subhorizontal reflectivity suggesting that the lower crust of the arc continued to subduct beneath the microcontinent and it now forms part of the lower crust.