

Tracing edges of Baltic Shield and Karelia craton by means of seismic anisotropy

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Several passive seismic experiments as well new stations of permanent networks provided data for detail studies of upper mantle anisotropy, particularly anisotropy of the mantle lithosphere. Joint interpretation of lateral variations of teleseismic P-sphere patterns and shear-wave splitting detected domains of mantle lithosphere with differently oriented fossil fabrics (Babuska and Plomerova, *Phys. Earth Planet. Int.*, 2006) and delimited their extent in the mantle (e.g., Plomerova et al., *Tectonophysics* 2001; Vecsey et al., *Tectonophysics*, 2007; Plomerova et al., *Solid Earth*, 2011). The south-western edge of the Baltic Shield, adjacent to the Sorgenfrei—Tornquist Zone separating the Precambrian and Phanerozoic parts of Europe, is characterised by a sharp change of the lithosphere thickness as well as of the anisotropy pattern. Change of the lithosphere thickness around the contact of the Proterozoic and Archean parts of the Shield is insignificant and the contact appears as a broad transition in the south-central Fennoscandia, which can be modelled as the Archean wedge penetrating into the Proterozoic mantle (Vecsey et al., *Tectonophysics*, 2007). Further northward the Archean-Proterozoic boundary looks narrow in the mantle and follows the surface trace of the Baltic-Bothnia Megashear Zone. It can be interpreted as a steep contact of two mantle lithosphere domains retaining their own fossil fabric.