



Shear-wave splitting measurements in the south-central Fennoscandia - problems and solutions

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Shear-wave splitting is a powerful tool in investigating upper-mantle anisotropy. Reliability of the splitting measurements depends on quality of recordings. The high-quality splittings demand to work with high signal-to-noise ratio records, well-separated phases and careful applying a routine procedure. Setting proper band-pass filters according to frequency signal content improves stability of the results. We also show several examples of misleading splitting evaluations due to, e.g., cycle skipping, short or too long waveform analyzed, inadequate filtering or ignoring energy content of the real signal on the transverse component.

In a case of high-quality data processing, the final amount of suitable recordings is rather low (Evans et al., 2005). To increase amount of data, we show a possibility to include signals from short-period (SP) stations. After their filtering by the same band-pass filter as for the broad-band (BB) stations, the splitting outputs from the SP stations are consistent with the BB ones. We show details of the splitting measurements mostly on data from the SVEKALAPKO array (south-central Fennoscandia). Lateral variations of the shear-wave splitting parameters reflect a general 3D orientation of anisotropic structures in the Precambrian mantle lithosphere.