



## **Observation of lowermost mantle anisotropy beneath Russia and at the northern edge of the African LLSVP**

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In the framework of the international ScanArray initiative we analyze core-refracted shear waves (SKS, SKKS, PKS) to study the anisotropic structure beneath Scandinavia. During the routine shear wave splitting analysis we observed major discrepancies in splitting parameters for SKS/SKKS pairs of the same event at several permanent and temporary stations. In this context one phase is split and the other exhibits a clear null observation. Since for our data set both phases have very similar raypaths and overlapping Fresnel zones from the transition zone up to shallower areas beneath the receiver, potentially these discrepancies are a signature of lowermost mantle anisotropy. In order to evaluate such a contribution of deep sources of anisotropy in our signals we systematically analyzed 320 well constrained SKS/SKKS pairs in our large data set.

However, due to the partly complex shear wave splitting patterns (variations of fast axis direction, delay time and null observations with backazimuth) at several stations, it is quite difficult to completely separate the different contributions from the overall splitting signal. To tackle this problem we apply a recently published approach which incorporates also the so called splitting intensity. In this way we can demonstrate that our recordings contain at least a small contribution of lowermost mantle anisotropy. Based on our measurements and the propagation paths of the waves, the anisotropic regions are located in around 2700 km depth along the northern edges of the African Large Low Shear Velocity Province (LLSVP) and beneath northern Siberia.