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# Estimation of shear-wave splitting parameters from P-receiver functions with application to data from the Iranian network

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We present a robust technique for the analysis of shear-wave splitting in layered anisotropic media by using converted shear phases. The method is based on azimuthal variations of the radial-component receiver function. In anisotropic media, the P-to-S converted phases exhibit a distinct variation in arrival time as function of back-azimuth. This variation can be exploited by time-shifting and stacking to derive the splitting parameters (i.e. the fast-polarization direction and the delay time) for an anisotropic layer. For multi-layered (weakly) anisotropic media, the method leads to effective splitting parameters. However, splitting parameters for the individual layers can be inferred by a layer-stripping approach, where the splitting effect on converted phases from deeper layers is successively corrected. The method is applied to data from the Iranian permanent broad-band stations. Using teleseismic recordings for the period between 2004 and 2008 with magnitudes greater than 5.5 at 15 permanent stations, we attempt to infer the crustal anisotropy beneath this region. The fast polarizations exhibit systematic variations and are near-perpendicular to the strike directions of orogenic belts in the Zagros and Alborz mountain ranges. In Central Iran, the crustal fast axes are sub-parallel to major strike-slip faults. The delay times in the crust vary between 0.2 and 0.6 seconds – large enough to have a significant influence on delay times obtained from conventional SKS analysis. We combine our result for crustal anisotropy with previous SKS results to isolate and resolve the anisotropy in the mantle.