

Observations of mantle seismic anisotropy using array techniques: Shear wave splitting of beamformed SmKS phases – Supplementary Material

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Supplementary Table

Table S1. Origin time, latitude, longitude, depth and moment magnitude of the events used in this study, according to the International Seismological Centre (ISC) catalogue.

Time (UTC)	Lat [°]	Lon [°]	Depth [km]	Moment Magnitude
2007-12-15 09:39:54	-6.66	131.13	65.1	6.4
2009-10-07 21:41:14	4.09	122.54	586.8	6.8
2009-10-24 14:40:44	6.12	130.43	140.3	6.9
2010-07-29 07:31:56	6.56	123.36	615.8	6.6
2011-09-05 17:55:12	3.03	98.00	106.6	6.7
2011-12-14 05:04:57	-7.53	146.81	128.5	7.1
2011-03-10 17:08:37	-6.86	116.73	518.6	6.6
2012-03-21 22:15:05	-6.22	146.01	117.7	6.6

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Supplementary Figures

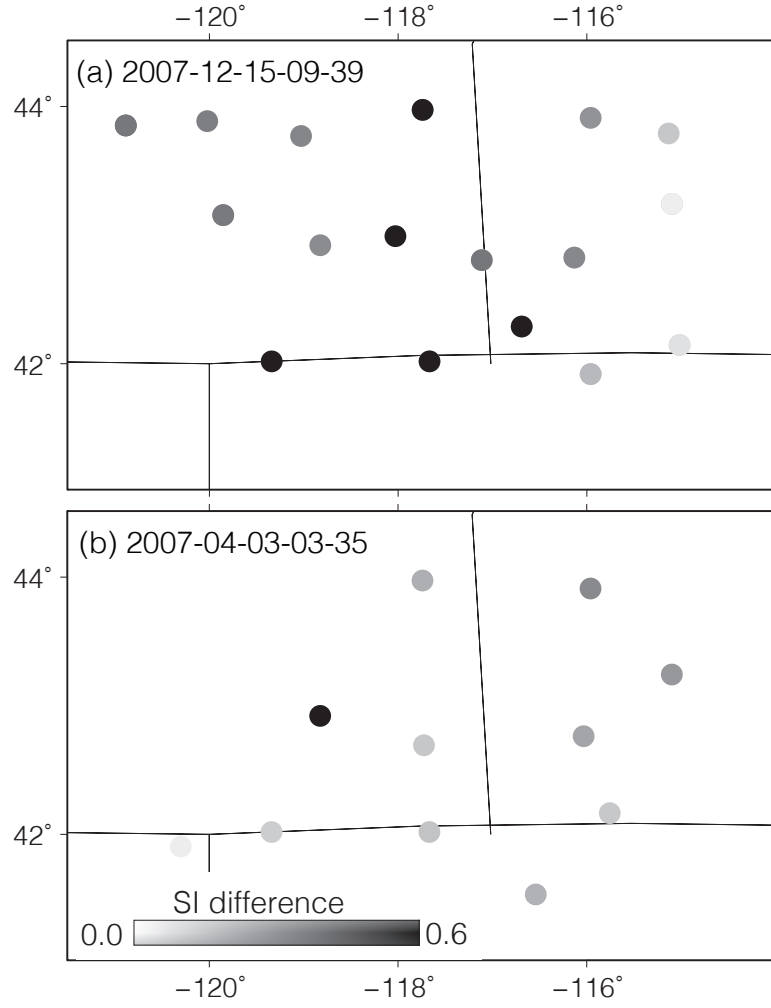


Figure S1. Difference in splitting intensity between the beam and the average of the single station seismograms that contribute to the beam, represented as a gray circle (legend) at the position of the beam's central station. (a) Identical to Figure 9b of the main manuscript for the High Lava Plains (HLP) region. (b) Same plotting conventions for different event and a different station distribution. The overall geographic *SI* difference patterns are different for panels (a) and (b) indicating that the large *SI* differences for the HLP region are mainly due to poor single station data quality for the event from panel (a).

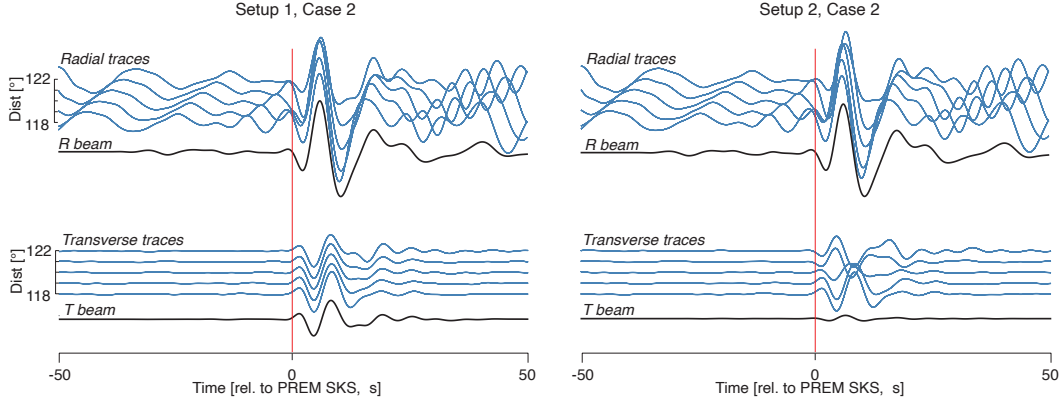


Figure S2. Single station (blue) and beam (black) waveforms as a function of distance for the synthetic test presented in the main manuscript. The predicted SKS arrival according to PREM is indicated by a thin red line. Waveforms for setup 1 and case 2 (see Figures 9 and 10) are presented in the left panel; waveforms for setup 2 and case 2 (see Figures 9 and 10) are shown in the right panel.

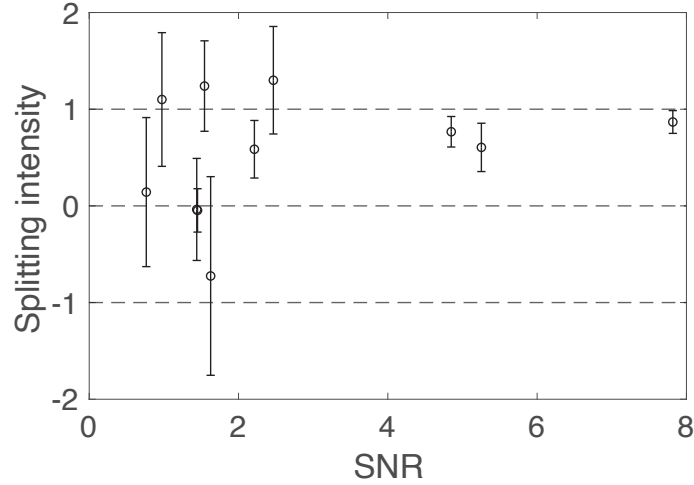


Figure S3. Splitting intensity as a function signal-to-noise ratio (SNR) for one randomly selected synthetic seismogram from the synthetic test that is presented in the main manuscript. Before measuring the splitting intensity, we added Gaussian noise to the waveforms and then determined the resulting SNR. $SI \approx 1$ is expected in the absence of noise. Splitting intensities (black circles) and 95% confidence intervals (error bars) were determined using SplitRacer. For SNRs smaller than 2, splitting intensity measurements are not reliable.