



Seismic evidence for a change in the large scale tomographic pattern across the D'' layer

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We present SEISGLOB1, a pure SV tomographic model of Earth's mantle based on Rayleigh phase velocities and normal mode self- and cross-coupling data. SEISGLOB1 is the first model that incorporates the cross-coupling of normal modes since the pioneering work of Resovsky & Ritzwoller (1999). The simultaneous inversion of new cross-coupling normal modes and self-coupling of high order normal modes measured by Deuss et al. (2013) and Stoneley modes measured by Koelemeijer et al. (2013) allows us to show that the velocity structure at the base of the mantle is more complex than that expected from a dominant spherical harmonic degree 2 and that the relative strength of odd degrees has previously been underestimated. Near the CMB, the LLSVPs are less homogeneous than in previous studies, and various local maxima, often potentially associated with hotspots sources, are observed.