ISOTROPY OR WEAK VERTICAL TRANSVERSE ISOTROPY IN D” UNDER THE ATLANTIC

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Shear velocity properties of the D” region below the central Atlantic are explored using GSN, GeoScope, and GEOPHON recordings from Europe and Africa for intermediate and deep focus earthquakes in South America. Regional shear velocity heterogeneity near the base of the mantle is mapped by analysis of S-SKS differential times corrected for aspherical mantle structure above D”. There is a lateral gradient from faster to slower velocities moving from west to east across the region, with PREM-like average velocities under the central Atlantic. 105 shear wave splitting times are measured, with corrections being applied for lithospheric anisotropy whenever possible. While some of the larger values have SV delayed relative to SH, the majority of data show little evidence for transverse isotropy or azimuthal anisotropy. Assuming vertical transverse isotropy distributed over a 300 km thick region, as observed under the Caribbean, the magnitude of anisotropy is found to be less than 0.25%. Supported by NSF grants EAR-9996302, and EAR-0125595.