Lateral heterogeneity of the mantle inferred from the earth's free oscillation

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Splitting function to represent mantle heterogeneity is estimated by using sprctral fitting technique for spheroidal modes which are excited by 7 major earthquakes having the moment magnitudes larger than 8.0. In order to prepare spectral data of the spheroidal maltiplets, we analyzed the vertical component seismograms recorded at stations of the IRIS seismic network. Splitting function is expanded with spherical harmonic functions of even degree up to forth order. The structural heterogeneity is characterized by the expansion coefficients of the splitting function. We found that the degree 2 structure is more pronounced than the degree 4 structure and that the axis-symmetry heterogeneity is enhanced with increasing depth in the mantle.