

Multi-scale Structure and Lithospheric Discontinuities

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The continental lithosphere is heterogeneous on a wide variety of scales and apparent seismic discontinuities arise from the interaction of the seismic wavefield with multiple-scale features. In consequence the character of such discontinuities is frequency-dependent. Nevertheless it is possible to track discontinuities within the lithosphere across closely spaced stations exploiting P-wave reflectivity extracted from stacked autocorrelograms at each receiver.

Although most inference of finer-scale structure is indirect, corroborative evidence comes from the geochemistry of xenoliths across southeastern Australia. There is a close correspondence between changes in chemistry and P-wave reflectivity in the neighbourhood of the xenoliths.

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