

Structural and fabric analyses of an uppermost oceanic mantle lithosphere: an example from the Oman ophiolite mantle section

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The mantle section of the Oman ophiolite is the largest piece recognized so far of uppermost oceanic lithosphere exposed at the Earth's surface. Extensive structural mapping of these rocks has been conducted throughout the Oman mountain range in order to unravel mantle processes associated with the generation of the oceanic lithosphere. We examine olivine fabrics in the Hilti mantle section by electron back-scattering pattern (EBSP) analysis in scanning electron microscope. As a result, olivine fabrics change from axial (010) pattern to (010)[100] pattern towards the deeper level from the Moho during asthenospheric deformation. These fabrics appear to influence later structural development during lithospheric deformation.