특별세션 논문초록

Sesismic anisotropy generated from lithospheric mantle beneath Mt. Melbourne, norhtern Victoria Land, Antarctica

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논문초록

The NE-SW-trending fast S-wave splitting beneath northern Victoria Land, Antarctica, has been regarded as the products of magmatism and lithospheric mantle. Microstructures of six mantle xenoliths from the Mt. Melbournne area were investigated to reveal the influence of lithospheric mantle on seismic anisotropy in the study area. The studied harzburgite and lherzolites show various degrees of deformation due to lithology. The rotated olivine CPOs of five samples displays clustered [100] and girdled [010], which is classified into D-type fabric and those of one exhibits clustered [100] and girdled [010], that is categorized into A-type olivine fabric. Those olivine types could be formed at high stress conditions hence subducting at Early Paleozoic and rifting at Mesozoic could be candidates for tectonic environments. Seismic properties calculated from the EBSD data show fast S-wave anisotropy along the olivine *a*-axis. The observed delay time of 0.9-13 s could be generated mostly by the studied peridotites however additional source such as melt-pockets is needed to explain the rest of seismic anisotropy beneath northern Victoria Land, Antarctica. This study therefore proves significant source of observed seismic anisotropy generated from lithospheric mantle.

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