

구두 8-2

Microstructures of mantle xenoliths from the Mt. Melbourne, northern Victoria Land, Antarctica

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We performed microstructural analyzed on mantle xenoliths from the Mt. Melbourne, northern Victoria Land, Antarctica, using the EBSD technique. The analyzed samples defined as lherzolite, harzburgite and dunite show protogranular olivine and orthopyroxene and interstitial clinopyroxene and spinel. Ca-in-orthopyroxene thermometer estimates the equilibrium temperature as 860-920°C. Eigenvalues of [010] and Fabric-Index Angle (FIA) identify five samples as D-type and one sample as A-type olivine. Orthopyroxene and clinopyroxene exhibit dispersed multiple clusters in CPOs probably caused by poor indexation or low abundance of minerals. Seismic properties of the peridotites display concordant direction of fast S-wave polarization and a-axis of olivine. Observed fast S-wave splitting in northern Victoria Land along NE-SW direction can be partially explained by the studied peridotites.

The Ross orogenic belt, such as the Deception margin of Gondwana, is a remnant of Rodinia, a supercontinent that existed at the time. This late Proterozoic population of the Cambro-Ordovician age in Victoria Land, Antarctica, postdate the Eozoic.

Inherited zircon oscillatory zoning U ratios (0.34-0.4) and respective analyses yield data in combination with the eclogites dated at 600-580 Ma. The composition of the northern Victoria Land is an existing metamorphic belt (TAM). There is a Delamerian orogenic belt (Ma) convergent Cryogenian.