

SIT038-P05

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Petrogenesis of dunite-wehrlite in the Moho transition zone: an example from Wadi Thuqbah, the northern Oman ophiolite

Hironori Negishi^{1*}, Shoji Arai², Norikatsu Akizawa³

¹Dept. Earth Sci., Kanawawa Univ., ²Nat. Sci. Tec., Kanazawa Univ., ³Dept. Earth Sci., Kanawawa Univ.

We petrologically examined rocks distributed around the Moho transition zone along Wadi Thuqbah in the northern Oman ophiolite. The dunites-wehrlites are associated with network-like, platy and layered gabbros. Network-like and platy gabbros are more densely distributed than the layered gabbros in the dunites-wehrlites. Clinopyroxenes become more abundant near the gabbros in the dunites-wehrlites.

Mineral chemistry shows systematic variations in the dunites-wehrlites toward the adjacent gabbroic rocks; (1) the Fo content (90 to 82) of olivines and Mg/(Mg+Fe) atomic ratio (0.92 to 0.87) of clinopyroxenes gradually decrease and (2) the Cr/(Cr+Al) atomic ratio (0.55 to 0.65) is constant though the TiO₂ content (0.12 to 2.45 wt%) increases rapidly in spinels.

Geological, petrographical and mineral chemical characteristics suggest that the dunites-wehrlites formed by magma-harzburgite interaction, which was more effective as the gabbros are more densely associated with.

Keywords: crust-mantle transition zone, dunite, wehrlite, magma-wall rock interaction, oman ophiolite