Petrological study of the Salahi mantle section in the Oman ophiolite

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This study reports the spatial distribution of the whole rock chemical composition and the changes in the degree of partial melting in the area from the central part of Salahi mantle section to the Moho. Study area is located in Salahi mantle section in the northern Oman ophiolite, which mainly consists of harzburgite and dunite with small amounts of lherzolite and pyroxene. Depending on Cr# (=Cr/ [Cr+Al] atomic ratio) of spinel, there are two types of dunite in the study area. Dunites with Cr# of spinel above 0.7 and those with Cr# of spinel below 0.7. The former is dominant in the area from the bottom to the middle part of the mantle section. In the Moho side, Cr# of spinel in dunites and harzburgites are 0.55-0.60. The dunites and harzburgites with low Cr# spinel are considered as mid-ocean ridge origin (Takazawa et al, 2012). On the other hand, the dunite with high Cr# spinel in the area from the bottom to the middle part of the Sarahi mantle section was formed by the reaction of harzburgite with fluid that was infiltrated from the basal thrust during intra-oceanic detachment. This study is to fill the data of a blank area of research area through the analysis of the whole rock and mineral compositions and the changes in the degree of partial melting, to determine the influence of the fluid in the upper part of Salahi mantle section.

References

Takazawa, E. (2012) Melting and reaction in an incipient subarc mantle as inferred from the spatial compositional variability in the mantle section of the Oman ophiolite. *Japanese Magazine of Mineralogical and Petrological Sciences*, **41**, 257–266, http://dx.doi.org/10.2465/gkk.120704 (in Japanese with English abstract).