

Structural petrology of peridotites from the Kalaymyo ophiolite

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The Kalaymyo ophiolite is located at Myanmar. The Kalaymyo ophiolite includes large peridotite massifs, where peridotites are commonly well preserved. In recent years, petrologic and geochemical studies have been carried out on the Kalaymyo peridotites. These results suggest that the Kalaymyo peridotites have been undergone melt-rock interactions. In this study, we used fourteen samples from outcrops and drill cores, and carried out analyses of crystal preferred orientations (CPOs) of olivine and of major elements of olivine and spinel. The samples show coarse-grained equigranular textures. The mineral compositions in spinel Cr# and olivine Mg# plot in the field of OSMA (olivine-spinel mantle array) indicate that these samples represent residual upper mantle rocks after partial melting. Spinel grains with Cr# higher than 0.3 have relatively high TiO₂ contents (0.10-0.20 wt.%). Because Ti is incompatible element, high spinel TiO₂ content suggests that these peridotites have experienced melt-rock interaction. There is a positive correlation between J-index and spinel Cr# in the samples. The correlation also has two trends: high and low positive relationships between J-index and spinel Cr#, respectively. Samples experienced melt-rock interaction belong to the low positive trend. It suggests that melt percolation by melt-rock interaction could have an impact on deformation, in particular on CPO development. We propose that melt-rock interaction was synchronous with deformation. It is noted that peridotites experienced melt-rock interaction are intensely located on a narrow range with respect to the elevation, indicating that the occurrence of melt-rock interaction was localized within the Kalaymyo ophiolite.

Keywords: Kalaymyo ophiolite, peridotite, melt-rock interaction, J-index