

Characteristics of subcontinental lithospheric mantle beneath Kurose islet, Southwest Japan: Spinel peridotite xenoliths

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Peridotite xenoliths brought up by alkali basalt beneath the Kurose islet, Southwest Japan, consist of mostly harzburgite and minor lherzolite with porphyroclastic texture. Trace element data, showing LREE - depleted and spoon patterns, suggest that the xenoliths had undergone the depletion and slight enrichment processes. The spinel peridotites have been derived from the depth of 48 to 51 km at a given equilibrium temperature range from 1030 to 1082°C. Variations of modal and mineral compositions of the spinel peridotite xenoliths indicated that the xenoliths had modified by various degrees of fractional melting from 6 to 11%. The spinel peridotites from Kurose islet have undergone cryptic mantle metasomatism subsequent to melt extraction. Metasomatic agent of enriched spinel peridotite xenoliths was silicate melt.

Key words: Kurose islet, lithospheric mantle, spinel peridotite, metasomatism.