

Rb-Sr mineral isochron ages of mantle peridotite xenoliths from Kurose, Southwest Japan.

Masako Yoshikawa[1]; Shoji Arai[2]

[1] BGRL, Kyoto Univ.; [2] Dept. Earth Sci., Kanazawa Univ.

Mantle peridotite xenoliths in Cenozoic alkaline basalts of the North Kyushu have been expected to characterize the geochemical and isotopic compositions of the upper mantle under the island arc or continental margin. On the basis of petrological studies of these peridotite xenoliths (e.g. Arai et al., 2001), it has been suggested that the Kurose peridotite xenoliths had escaped from metasomatism related to alkali basalt magmatism and asthenospheric upwelling. In order to obtain chemical and isotopic signature before asthenospheric upwelling, we propose mineral compositions, trace element compositions of clinopyroxenes and the Rb-Sr and Sm-Nd isotopic compositions of constituent minerals of the five Kurose peridotite xenoliths.

The Rb-Sr mineral isochron of sample KR375 gives an age of approximately 120 Ma with an initial Sr isotopic ratio of 0.70380. This initial Sr isotopic ratio is higher than MORB value. Abe and Yamamoto (1999) reported three mineral-whole rock Rb-Sr isochron ages (130Ma, 313Ma, 487 Ma) from the Kurose xenoliths. Our estimated age is consistent with the youngest reported age. However, there is difference of initial Sr isotopic ratios between their sample (0.70431) and our sample. This difference suggests that upper mantle of this region was isotopically heterogeneous 120 Ma ago.