

## Origin of Yokota alkali basalt province, Southwest Japan

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Yokota alkali basalt province is located to the west of Daisen volcano, Southwest Japan. The province consists of 25 monogenetic volcanoes, which were active between 2.2 and 1.0 Ma. The basalt lavas are primitive alkali basalt with MgO contents greater than 8wt% in most of the lavas. We have examined temporal-spatial variations of major and trace elements and Sr-Nd isotope ratios of the lavas.

The eruption centers of the Yokota province expanded quasi-concentrically with time. In general, total-alkali contents and Ce/Y ratios increased with time. We consider that these phenomena represent the decrease of magma segregation depths. Moreover, Sr-Nd isotopic ratios indicate two distinct mixing lines. One line is drawn between the middle of MORB-Bulk Earth and the Bulk Earth values. The other trend is almost parallel to it but plots in more radiogenic Sr side. The lavas belonging to the former group tend to occur in the center and earlier stage of the eruption. The latter share the perimeters of the cluster and likely to occur younger stage. The magma sources could have changed from depleted deep asthenosphere to shallower enriched lithosphere as the asthenospheric mantle diapir ascended and melted the base of overlying lithosphere. The diapir would have incubated at the bottom of lithosphere and expanded horizontally resulted in spreading of the province. We consider that the ascended and incubated mantle diapir model best explains the origin of Yokota alkali basalt province.