

Mantle heterogeneity beneath Sunda volcanic arc, Indonesia

Jun-Ichi Kimura[1], Yoga Andriana[2]

[1] Dept. Geosci., Shimane Univ., [2] Dept. Sci. and Math., Pajajaran Univ., Indonesia

We examined 206 lava samples collected systematically from six volcanoes located across arc of west Sunda volcanic arc. These samples include low- to high-K suite lavas ranging from basalt to dacite. Increases in incompatible elements are evident with increasing the distance from the Sunda trench. REE pattern also systematically become steep following the spatial order. Sr and Nd isotope systematics shows significant crustal assimilation found in andesite lavas. Mantle sources of the six volcanoes are estimated based on Nd-Sr isotopes of basaltic lavas. Low-Nd I basalt occurs in the mid arc basalt, depleted sources are suggested from frontal arc basalts. Very enriched andesite also occurs in the frontal arc volcano, which suggests crustal melting in origin. Systematic incompatible element behavior suggests controls of degree of partial melting and residual mantle mineralogy that systematically differ across the arc. In contrast, large isotopic heterogeneity suggest source mantle heterogeneity existing beneath the volcanic arc.