

Magmatic process in reservoir in terms of temporal change in Sr isotopic ratio of phenocrysts in the Unzen dacite lavas

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Disequilibrium texture of phenocrysts is common in the Unzen dome lavas. The glomerophyric aggregation implies their coexistence in a crystal mush zone in the reservoir margins or xenocrysts from intrusive wall-rock. Sr isotopic ratios of phenocrysts and groundmass are different from each other. Differences in Sr isotopic ratio between phenocrysts and groundmass increased with time. The temporal change represents one of the following states in the marginal zone, toward outside, before eruption. 1) The older crystals in the outer side, 2) the decreasing diffusive isotopic exchange between crystals and melt, and 3) decreasing of new crystal precipitation in melt. Erupted magma brought crystals in the marginal zone as phenocryst, at first, from the inner side and, then, from the outer side.