

## Heterogeneous structure of a magma chamber developed through crystallization differentiation inferred from plagioclase zonings

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Plagioclases included in basaltic to dacitic rocks that belong to a tholeiitic series, the Shirahama Group, Izu, Japan, were investigated. The plagioclases in the lower SiO<sub>2</sub> rocks have frequent melt inclusions. Each histogram of the plagioclase core and rim compositions has bimodal distributions. In the present paper, we interpret the textural and compositional data in the context that the magma has a heterogeneous structure developed through crystallization differentiation, and that the heterogeneity is homogenized during the magma ascent. Especially, we demonstrate an attempt to estimate volumetric ratio between the partial magmas that construct the heterogeneous structure using the compositional data. First, crystal compositions representative of the partial and homogenized magmas are estimated from the core and rim compositions, respectively. Then, the crystal compositions are converted to the melt compositions using plagioclase phase relation. Finally, volumetric ratios between the partial magmas are determined using balance relation among the melt compositions of the partial and the homogenized magmas. From the calculation, quantitative information on the spatial structure developed from basaltic to dacitic magmas was presented. Furthermore, origins of the frequency of plagioclase with melt inclusions are explained by the degrees of the estimated undersaturation and supersaturation from the compositional data. For simplicity, we treated the only two partial magmas, and the magmatic compositions are reduced to two components in anorthite-albite system.