

Evidence for slab window along segment boundary: constraints from the thermal condition of a primary magma in El Salvador

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A cinder cone field in El Salvador has been petrologically studied in order to clarify the magma genesis related to the unique segment boundary in Central America. Olivine phenocrysts of Laguneta lava are peculiar in their remarkable compositional zoning suggesting the fast magma ascent that preserves magmatic history. Diffusion-growth model based on the analysis of zoning indicates the involvement of two types of primary magmas which were derived by different degrees of melt extraction from the source mantle. The primary magma is inferred to be picritic and the temperature greater than 1580°C. The existence of such high temperature beneath the segment boundary indicates the thermal and material interaction between the supra and sub-slab mantle through the fracture of subducting slab.