

The origin of Ca-rich plagioclase and Mg-rich olivine in Miyakejima volcano

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The Type1 mineral assemblage of calcic plagioclase (An90) and magnesian olivine (Fo80) is often discovered from lava and scoriae in Miyakejima volcano located on the volcanic front of Izu-Ogasawara arc, Japan. The petrographical characters and mineral composition indicate that Type1 assemblage can not equilibrate with any groundmass compositions analyzed in this study but crystallized from relatively undifferentiated magma. Melt inclusions within Type1 minerals, which show the magma composition crystallized the minerals of Type1, show less evolved feature.

On the other hand, close relationship between the appearance of Type1 assemblage and abrupt increase of whole-rock Mg# strongly suggests that relatively undifferentiated magma carrying Type1 crystals was supplied into the magma plumbing system.