

# Petrological study of melt inclusions in magnesian olivine phenocrysts

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Melt inclusions, trapped and isolated in Mg-rich olivine phenocrysts (Fo79-84) and Ca-rich plagioclase phenocrysts (An88-94) from basalts in Miyakejima, have been analyzed by EDX for major elements contents and by FTIR for H<sub>2</sub>O contents. This approach allows us to conduct general survey of relatively undifferentiated magma and primary magma derived from subduction zone. The undifferentiated melts included in olivine have low FeO\*/MgO ratios from 1.36 to 2.01. Petrological study and major elements of melt inclusions suggest that only olivine phenocrysts crystallized at relatively undifferentiated magma which FeO\*/MgO ratios range from 1.36 to 1.56. H<sub>2</sub>O content at FeO\*/MgO=1.56 is 1.8wt.% by FTIR. Therefore, as a result of mass balance calculation and assumed only olivine phenocrysts fractionated by primary magma, it turns out that the quantity of water is about 1.5wt.%. For primary melts in Miyakejima islands, the present H<sub>2</sub>O contents are about 1.5wt.%, which is higher than commonly assumed.