

K129-001

Room: 201B

Time: May 19 13:45-14:00

Homogeneous residual composition of Ontong Java Plateau magmas: Evidence from spinel mineralogy

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[1] none

<http://research.kahaku.go.jp/department/geology/index.html>

High-Mg (Kroenke-type) basalts of Ontong Java Plateau (OJP) contain spinel crystals, occurring mainly as inclusions in olivine phenocrysts. The nearly identical Cr/(Cr+Al) ratios (0.41-0.54) of spinel crystals, together with relatively primitive composition of host olivine phenocrysts (Fo₈₃₋₈₈), imply that most OJP magmas are in equilibrium with slightly depleted residual mantle with homogeneous composition. The use of previously published oxygen geobarometer yields that the OJP spinel crystals tend to be slightly more oxidized (0.6 log units) than those in depleted mid-ocean ridge basalts and less oxidized than those in ocean island basalts. These spinel data are consistent with previous suggestions that the OJP magmas were generated by relatively high degree of partial melting of fertile peridotite.