

LITHOSPHERIC MANTLE HETEROGENEITIES BENEATH SOUTHERN PATAGONIA

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Fifty samples were chosen from 6 outcrops in Southern Patagonia. While sample suites from Don Camilo, Gobernador Gregores and Tres Lagos comprise Sp-lherzolites and Sp-harzburgites, samples from Potrok Aike, Salsa and El Ruido, all within Pali Aike Volcanic Field (PAVF), comprise also Sp-Gt-lherzolites and Sp-Gt-harzburgites.

According to Cpx REE patterns, the samples can be divided into 4 groups within Sp-peridotites and 2 within Sp-Gt-peridotites. Group I Sp-peridotites show a depletion in LREE reflecting different degrees of partial melting. Group II shows an enrichment in MREE over LREE and HREE suggesting basaltic melt percolation. Group III REE patterns are flat from HREE to MREE with an enrichment in LREE. Group IV Cpx are in addition enriched in MREE over HREE reflecting stronger metasomatic overprint than Group III. While Group I Sp-Gt-peridotites represents slightly depleted samples with typical REE patterns of Cpx in equilibrium with Gt, Group II Cpx REE patterns show LREE enrichments reflecting metasomatic event(s).

Re-Os analyses of 24 Sp-peridotites reveal highly variable T_{RD} . While T_{RD} at Tres Lagos range from 1 to 1.6 Ga, samples from Don Camilo and Gobernador Gregores yield ages from 0.6 and 0.8 to 1 Ga, respectively. Samples from PAVF yield T_{RD} from 0.3 to 2.3 Ga. A depletion in Pt, Pd and Re in all samples reflect different degrees of partial melting.

REE abundances, different degrees of partial melting and transition reactions from Sp to Gt stability field and vice versa, suggest a very heterogeneous SCLM beneath Southern Patagonia.