

## Metasomatic and refertilization processes beneath Patagonia

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Depletion and enrichment processes affecting the Patagonian lithospheric mantle have been investigated through a suite of anhydrous peridotites sampled at Estancia Sol de Mayo (ESM, Central Patagonia, Argentina) [1], and a comparison with other Patagonian localities (4 from Northern and 2 from Central Patagonia).

Major element composition of cpx and opx of ESM highlights two different trends characterized by i) high Al<sub>2</sub>O<sub>3</sub> content at almost constant mg# and ii) a slight increase in Al<sub>2</sub>O<sub>3</sub> content with decreasing mg#. Cpx are LREE-enriched and characterized by prominent to slightly negative Nb, Zr and Ti anomalies. Cpx La/Yb and Sr vs Al<sub>2</sub>O<sub>3</sub> show negative correlation pointing to a refertilization event affecting this lithospheric mantle portion. The agent was most probably a transitional alkaline/subalkaline melt, as also indicated by the presence of opx arranged in vein and the similar geochemical features of ESM cpx and those from Northern Patagonia pyroxenites which are derived from transitional alkaline/subalkaline lavas.

A further comparison between cpx compositions from different localities in Northern and Central Patagonia suggests other two enrichment trends acting in the subcontinental lithospheric mantle that can be ascribed to alkaline or tholeiitic metasomatism/refertilization processes.

Sr-Nd systematic performed on samples from several localities show a large range of both isotopic ratios. Mixing calculations allow to assess that up to 9% of an EM II component is needed to account for the most radiogenic samples.

[1] Melchiorre et al., 2015. Tectonophysics in press.