

## METASOMATISM IN THE LITHOSPHERIC MANTLE BENEATH SOUTHERN PATAGONIA, ARGENTINA

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Mantle xenoliths from Gobernador Gregores, southern Patagonia are spinel- lherzolites, harzburgites and wherlites. A large number of the studied xenoliths have experienced cryptic and modal metasomatism. The xenoliths are mainly coarse-grained with prevalent protogranular texture but equigranular tabular and mosaic textures are present as well.

Xenoliths that have undergone modal metasomatism bear hydrous phases such as amphibole, phlogopite ± apatite and melt pockets. The latter are of particular interest because of their unusually large size (up to 1 cm in diameter) and freshness. They consist of second generation olivine, clinopyroxene and spinel ± relict amphibole ± sulfides that are surrounded by a yellowish vesicular glass matrix. The melt pockets are found in amphibole- and/or phlogopite-bearing wehrlites and harzburgites as well as anhydrous lherzolites.

There are considerable differences between first and second generation minerals found in melt pockets. While primary olivine has Fo-contents that range from 88.0 to 93.3, second generation olivines in melt pockets vary from Fo<sub>89.3</sub> to Fo<sub>94.4</sub>. Both primary and second generation cpx are diopsides with the latter systematically enriched in TiO<sub>2</sub>. The glasses that occur in melt pockets or propagate intergranular have compositions varying from trachyandesite to phonolite. The variable composition of the glass could be attributed to host basalt infiltration and decompressional melting of amphiboles.

Textural and mineralogical evidences indicate that amphibole breakdown initiated the melt pocket generation process. It appears that the amphibole breakdown took place rather *en route* and not prior to their transport to the surface.