

## SERIES DE LEUCOGRANITOIDES PERALUMINOSOS Y METALUMINOSOS PREANDINOS EN LA ALTA CORDILLERA DE LOS ANDES DE CHILE CENTRAL

### PRE-ANDEAN PERALUMINOUS AND METALUMINOUS LEUCOGRANITOID SUITES IN THE HIGH ANDES OF CENTRAL CHILE

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Two distinct pre-Andean leucogranitoid suites are recognized in the high Andes of Central Chile (30°-31°S): The Hacienda Vieja and Monte Grande Suites (HVS and MGS). Both represent the transition from the Upper Palaeozoic orogenic magmatism to the Andean orogeny igneous activity (post-Triassic).

The HVS comprises medium-grained peraluminous leucogranites and leucogranodiorites whereas the MGS includes medium-to fine-grained and porphyritic leucogranites of metaluminous character. The modal mineralogy of the HVS leucogranitoids consists mainly of plagioclase, quartz, interstitial microcline, biotite ± muscovite and ± andalusite and cordierite - bearing nodules. The MGS leucogranites are characterized by large amounts of quartz, plagioclase, perthitic K-feldspar and minor Fe-hornblende, Fe-hedenbergite and biotite.

The two suites have a small range of composition caused mainly by intrasuite plagioclase-dominated fractionation. Calculation based on compositions of feldspar, muscovite, biotite and Fe-Ti oxides indicate that the HVS plutons crystallized at higher total pressure ( $P \sim 3.0$  Kb), lower temperature ( $T \sim 670^\circ$ ) and higher oxygen fugacities than those of the MGS ( $P \sim 1$  kb;  $T \sim 750^\circ$ S).

Although the fractionation of a mantle-derived magma is not ruled out in the origin of the MGS, the two suites may be the products of partial fusion at different crustal depth and hence H<sub>2</sub>O contents, of semipelitic protolith in the case of the HVS and of deeper-seated quartzofeldspathic rocks in the case of the MGS. Crustal melting was probably induced by a long-lived thermal perturbation caused by voluminous Palaeozoic mantle-derived magma injection and decompression of the crust linked to an extensional tectonic regime.

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