

Metamorphism of the El Trapiche - La Carolina area, San Luis Province, Argentina

¹MOGESSIE, A., ¹HAUZENBERGER, C. A., ¹HOINKES, G.,
¹FELFERNIG, A., ^{2,3}BJERG, E.A. AND ^{2,3}KOSTADINOFF, J

¹Institut fuer Mineralogie-Kristallographie und Petrologie, Universitaet Graz, A-8010 Graz, Austria; ²Departamento de Geologia, Universidad Nacional del Sur, 8000 Bahia Blanca, Argentina; ³CONICET

The El Trapiche - La Carolina area belongs to the Sierras Pampeanas, of Central Argentina. The Paleozoic crystalline basement consists of greenschist, amphibolite and granulite facies rocks, mafic-ultramafic bodies, metagranites, and pegmatites. Greenschist facies rocks, phyllites, were metamorphosed at temperatures of about 400°C. Most of the crystalline basement consists of amphibolite facies rocks with staurolite - garnet - biotite - muscovite - plagioclase - quartz - ilmenite ± fibrolite ± chlorite mineral assemblages.

The mafic - ultramafic bodies found on the surface are part of a larger complex underneath the surface. The intrusion of mafic-ultramafic rocks into the amphibolite facies basement (540 - 630°C) caused locally granulite facies (700 - 800°C) metamorphism with mineral assemblages of garnet - cordierite - sillimanite - biotite - K-feldspar - plagioclase - quartz - rutile - ilmenite +/- orthopyroxene (G). Most samples indicating granulite facies metamorphism are retrograded to a more or lesser extent by the second deformation phase (600 -650°C). The pressure remains with about 5.5 to 7.5 kbar constant. The deduced P-T conditions can be explained best by an anticlockwise P-T path. The most likely geotectonic setting of the Sierras de San Luis is an extensional back-arc which developed at the late stage of a compressional orogeny.