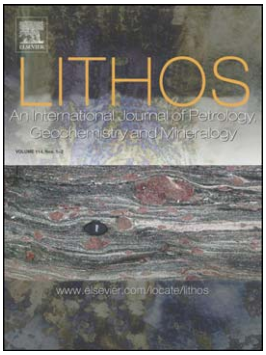

Petrogenesis of Migmatites and Leucogranites from Sierra de Molinos, Salta, Northwest Argentina: A petrologic and geochemical study

Alfonso M. Sola, Raúl A. Becchio, Márcio M. Pimentel

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Title: "Petrogenesis of Migmatites and Leucogranites from Sierra de Molinos, Salta, Northwest Argentina: a petrologic and geochemical study"

Sola, Alfonso M.[a,b*]; **Becchio,** Raúl A.[a,b] and **Pimentel,** Márcio M.[c]

[a] *Universidad Nacional de Salta, Salta Capital, Argentina.*
[b] *Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)*
[c] *Universidade de Brasília – Instituto de Geociências, Brasil.*

**Corresponding author:*
e-mail: alfonsoseptimo@yahoo.com.ar Tel.: (0054) 387-4255441
Universidad Nacional de Salta, Argentina-Avda. Bolivia 5150; Zip Code: 4400

ABSTRACT

In Sierra de Molinos, Eastern Cordillera, NW Argentina the relationship between different components of an anatectic system developed in high temperature and low pressure conditions (<800ºC and 4-6 kbar) can be observed. This allows the direct insight on the origin of migmatites and granites by anatexis of psammo-pelitic metasedimentary rocks. Four principal rock types have been recognized in Sierra de Molinos 1) metasedimentary rocks, assigned to the Puncoviscana Formation, 2) metatexite migmatites, 3) diatexite migmatites and 4) anatectic granitoids including: leucogranites, trondhjemites and pegmatite/aplitic dykes. The metamorphic grade increases from phyllites and schists at sub-greenschist and greenschist facies in the west, to upper amphibolite facies migmatites in the east. The mineral assemblages indicate a progressive increase in temperature without a significant change in pressure. The ages obtained for granitoids and migmatites are identical within analytical errors and indicate that the metamorphic peak and anatectic granite generation occurred at ca. 470 Ma.

We use petrological and geochemical variations to investigate the formation of granite magma from migmatites that derived from metasedimentary protoliths. This provides