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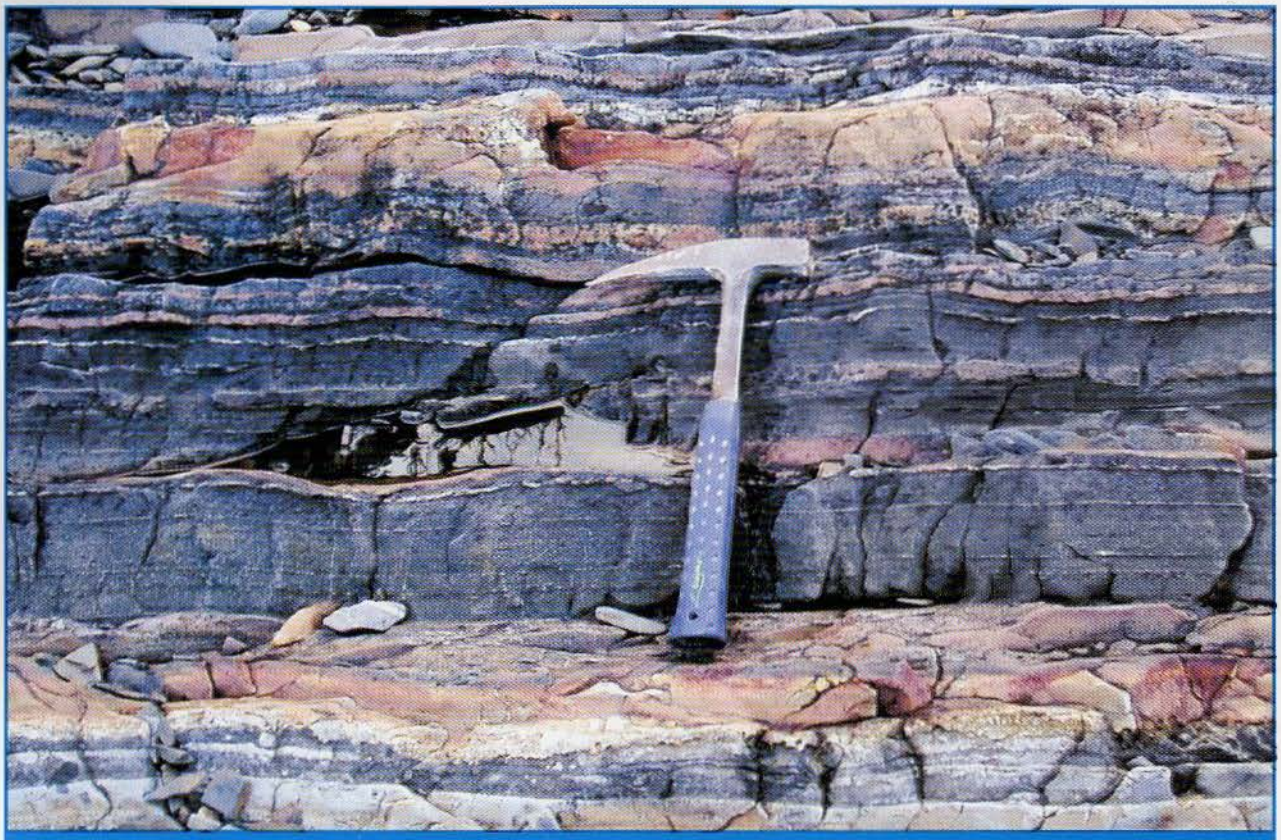

Organizan :
Departamento de Geología, FCFM, Universidad de Chile
Proyecto ARTG-04, "Conecciones Antártica - Patagonia", PBCT-CONICYT
Departamento de Ciencias Ecológicas, Pontificia Universidad Católica de Chile

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Geochemistry of early Carboniferous A-Type granitoids in the eastern Sierras Pampeanas

Dahlquist J. * [1], Alasino P. [2], Galindo C. [3], Casquet C. [3], Grant C. [4] and Medina C. [4]

[1] *UNC-CONICET, Av. Vélez Sársfield 1611. Pabellón Geol., X5016CGA-Argentina.*
[2] *CRILAR-CONICET. Entre Ríos y Mendoza. (5301). Anillaco, La Rioja, Argentina.*
[3] *Dpto. de Petrología y Geoquímica, UCM, 28040 Madrid, España.*
[4] *YAMIRI Ruta 5, km 5, Parque Industrial, La Rioja.*
* *Presenting author email: jdahlquist@efn.uncor.edu*

The intrusion of granitoids into the Eastern Sierras Pampeanas realm in the Early Carboniferous (Dahlquist *et al.* 2006) took place after a long period of mainly compressional deformation that embraces the Famatinian (Ordovician) and the Achalian (Devonian) orogenies. These granitoids constitute small scattered plutons emplaced within older metamorphic and igneous rocks, many of them arranged along reactivated large shear zone. A set of 40 samples of late plutons from the Sierras de Zapata, Fiambalá, and Velasco, display high and narrow SiO_2 contents, between 69.21 to 76.37%. On both FeO/(FeO+MgO) *vs.* SiO_2 and [(Na_2O+K_2O)-CaO] *vs.* SiO_2 plots (a geochemical classification diagram for granitic rocks, Frost *et al.* 2001) our samples plot in the ferroan and alkaline-calcic to calco-alkaline fields (FeO/(FeO+MgO)= 0.88-1.0%;[(Na_2O+K_2O)-CaO] = 6.3–8.3%), revealing A-type signature. Consistently, the relatively high concentration of some high-field strength (HFS) elements, such as (in ppm) Y(71), Nb(37), Ga(24), Ta(5), U(9), and Th (46) strongly suggest an A-type features for these granitoids. A similar conclusion results from a Ce+Nb+Zr+Y vs Ga/Alx10^3 plot (Ce+Nb+Zr+Y = 320-602 ppm, and Ga/Alx10^3= 2.8-4.7 ppm). Moreover, they have high REE contents (312 ppm) and pronounced negative Eu-anomalies (Eu/Eu* = 0.24, n = 37). Tectonic discrimination diagrams involving Nb and Y reveal that the Early Carboniferous granitoids plot in the "within plate granitoids" (Nb = 16-81 ppm; Y = 32-125 ppm) field. Trace element compositions further suggest that a significant continental crustal component is present in this group of granitoids (A_2-type granitoids, Dahlquist *et al.*, this volume). Based on the geochemical evidence above, the Early Carboniferous granitic magmatism in the Eastern sierras Pampeanas is interpreted as a within-plate A-type magmatism. This within-plate magmatism (A-type event Eastern of Sierras Pampeanas, ATEESP) followed two magmatic events related to consecutive orogenies along the proto-Andean margin of SW Gondwana, *i.e.*, Famatinian magmatism (483-463 Ma; Dahlquist *et al.* 2005), and Achalian magmatism (between ca. 400 and 365 Ma) (Sims *et al.*, 1998, and unpublished data).

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