

A look into the crystalline basement of the Norte Basin (Uruguay) from deep well geochemical data

E. PEEL^{1*}; R. MUZIO¹; E. MORALES¹; S. FORT¹; L. OLIVERA¹

¹Facultad de Ciencias, Universidad de la República. Iguá 4225 CP 11400, Montevideo, Uruguay (*correspondence: elena@fcien.edu.uy)

The Uruguayan Archean-Palaeoproterozoic basement correspondent to the Rio de la Plata craton [1] has been subdivided according to its tectomagmatic and chronostratigraphic evolution into two terranes, (Piedra Alta and Nico Pérez) separated by a major shear zone [2] named Sarandí del Yí shear zone. The northwestern region of Uruguay is geologically underlain by the southern extreme of the Paraná Basin, known as Norte Basin. The sedimentary pile comprises Devonian to late Cretaceous sedimentary sequences, intercalated with early Cretaceous volcanic and intrusives rocks related to the Large Igneous Paraná Province [3]. Little has been known about the petrological nature of the basement of this basin. Here are presented the first lithochemical results obtained from 12 deep boreholes (between 600 and 2100 TD), located along the central-north portion of the Norte Basin and at both sides of the Sarandí del Yí shear zone. The samples can be divided into two groups. Most of the samples corresponds mainly to syeno- and monzogranites (with biotite ± hornblende) whilst to the eastern region of the basin calc-silicate rocks were found. The lithochemical results for the granitoids show SiO₂ = 55.46–78.38 wt.%, Mg# = 16–47, Al₂O₃ = 10.85–16.67 wt.%, (Na₂O + K₂O) = 5.42–9.21 wt.%, A/CNK = 0.70–1.79, and ΣREE = 138.55 – 411.05. All the granitoid samples are high K - calc-alkaline, with metaluminous to peraluminous nature. Moreover, these granitoids are enriched in light rare earth elements (LREEs) and large ion lithophile elements (LILEs), and depleted in heavy rare earth elements (HREEs) and high field strength elements (HFSEs, Nb, Ta, and Ti).

[1] Almeida *et al.* (1973) *The ocean basins and margins*, Ch. XI, 411-446. [2] Bossi & Campal (1992) *Int. Symp. Paleozoico Inf. Latinoam.*, 343-356. [3] Peate (1997) *Geophys. Mon. (AGU)*, **100**: 217– 245.