



Geochronology of the Nepheline Syenite of el Jordán, Guaviare Colombia, evidences of Neoproterozoic-Cambrian intraplate magmatism and its implications during Pan- African tectonics in western Gondwana.

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This study presents the preliminary results of U-Pb dating of large zircon crystals found at the pegmatite phases of the Nepheline Syenite of San José del Guaviare Colombia. The study area locates to the east of the Colombian Andes where most of the Guiana shield is covered by a thick clastic sequence of Cenozoic sediments derived from the Andean exhumation. In this realm are found several ranges, decimated along this extensive area of the Guiana shield that preserve remnants of Paleo and Neoproterozoic outcrops, intruded by granitoids in many cases of unknown ages, these Precambrian units are capped by relicts of Cambrian and Cretaceous sedimentary rocks as well.

Nepheline Syenite outcrops were explored in the vicinity of San Jose del Guaviare, at the locality of el Jordán, samples of rock, pegmatite, colluvium deposits and active sediments, were collected. Petrographically, the analyzed syenites are composed mainly of potassium feldspar, nepheline, plagioclase, and traces of biotite and calcite, the rocks are totally depleted of quartz.

Whole rock geochemistry (FRX) from 20 samples indicates insaturated and peralkaline rocks. From active sediments and colluvium related to pegmatites from the Nephelinitic Syenite, abundant zircon, magnetite and ilmenite crystals up to 2 cm diameter were recovered.

Geochemistry of zircon (FRX, MEB-EDS) showed Hf enrichment, light and heavy rare earth elements as Yb, Dy, Ho, La, Pr, Sm, Nd, Pm, Eu elevated contents as Th and U evidence their metamictic character of these crystals.

Cathodoluminescence imagery showed growth and oscillatory zoning, sometimes convolute zoning and deep fracturing, also frequently crystals displayed cores. Even with intense fracture and metamictization, because of crystal size we were able to analyze 20 crystals by LA-ICP-MS U-Pb. Our results showed concordant Neoproterozoic-Cambrian ages that can be correlated with previously obtained ages of c.a. $577.8 \pm 6.3 - 9$ Ma in a site 17 km towards the NW of our location, confirming thus the extent of this intraplate magmatic unit and its regional character. Such alkaline magmatism is devoid in the rest of the Colombian Andes further to the west, implying that magmatism of this age present in the intracratonic part that currently conforms the Eastern part of Colombia is widespread and could have occurred as consequence of the Pan- African orogeny, as mobile belts accreted to the NW part of Gondwana continental margin.

Currently other sites are under our scope since reports of such large zircon crystals can represent a very uncommon ore product of very specific tectonics and geochemistry, and a very complex evolutionary history that we intend to unveil.