

PRELIMINARY EPMA MONAZITE TH-U-PBT DATING RESULTS FOR GRANITOIDS FROM LA CULATA GRANITE, MÉRIDA, VENEZUELA

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Key-words: monazite, Th-U-PbT dating, EPMA, granitoids, La Culata Granite

La Culata Granite is the largest granitic batholith in the Venezuelan Andes, which is covering an area of 630km² within the central region of La Culata range. This granitoid intruded the gneisses from Iglesias Complex (Neoproterozoic-Early Paleozoic) and is overlaid by Cretaceous sedimentary rocks. Typical granitoids are peraluminous tonalites, granodiorites, and granites with "S-type" with light- to medium-gray color and medium- to coarse-grained hypidiomorphic textures. We selected a tonalite from Paramo El Oso and a granodiorite from Paramo de Tucani for this study. They present biotite and muscovite as typical mafic minerals and apatite, zircon, ilmenite, and monazite as the main accessories. C-coated polished thin sections were analyzed with a JEOL-JXA 8600S instrument in the EPMA laboratory at the Universidade de São Paulo. Almost complete WDS monazite analyses were obtained under 15kV, 300nA, 2-4μm conditions for the column acceleration voltage, beam current, and diameter, respectively. Attained detection limits were 90ppm, 100ppm, and 100ppm for Pb, Th and U. BSE imaging was used to monitor compositional variations. Monazite EM-0013A (587±7 Ma, ID-TIMS) was the age-reference standard. The granodiorite sample presents abundant monazite, mainly associated with biotite; crystals are inclusion-free and relatively idiomorphic, while in the tonalite sample monazite is occasional and more subjected to late alteration. They correspond to monazite-(Ce) with relatively homogenous compositions and highly fractionated LREE patterns. The best dating results were obtained for the granodiorite, which gave a weighted average age of 435 ± 12 Ma (N = 20), compatible with previous U-Pb isotopic data for similar rocks from the batholith. A lower and less precise age (ca. 415 Ma) were obtained for the tonalite. Significant lower ages (ca. 315-70 Ma) obtained in some crystals and crystal rims in both samples are related to late hydrothermal alteration.

