

U-Pb GEOCHRONOLOGY AND ISOTOPICAL CONSTRAINTS FROM THE JURASSIC IBAGUÉ BATHOLITH (CENTRAL CORDILLERA OF COLOMBIA): CHANGING FROM EXTENSION TO COMPRESSION IN CONTINENTAL ARCS?

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A Jurassic calc-alkaline I-type plutonic belt has been recognized along the northern Andes from Ecuador to Colombia based mainly on K-Ar amphibole and biotite cooling ages. U-Pb zircon geochronology have recently suggested a more robust identification of the temporal expression of several magmatic events between ca. 190 and 145 Ma. Within the Colombian Andes the precise duration and compositional variation of this magmatism through time is still scarcely known. New U-Pb zircon ages together with Nd-Sr isotopic analyses were obtained from the northern portion of the Ibagué batholith which is characterized by an I-Type convergent margin geochemical signature. In this segment volcanic rocks seem to be absent. Crystallization ages spans from 152.4 +1.5/-0.9 to 141.9 +1.1/-0.8 Ma. Initial $^{87}\text{Sr}/^{86}\text{Sr}$ ratios range from 0.70374 to 0.70559 whereas ϵNd range from 0.78 to 4.22. These ages are younger than those reported from the southernmost Ibagué batholith and other minor stocks are older ranging between ~200 to 180 Ma. This and other plutonic units that extend to southern Colombia to the Upper Magdalena valley and southernmost Colombia include coeval volcanic rocks and seem to have a mixed alkaline to calc-alkaline compositional signature characterized of more extensional settings. We suggest that the major changes through time in the abundance of volcanic rocks as well as the transition from bi-modal and more alkaline magmatism to the typical arc signature reflects a change in the stress regime from a former extensional setting that favor magma ascent to the surface towards a more compressional arc configuration. This shift is probably a result of the shallowing of the subducting slab and a more oblique convergence by the end of the Jurassic, which finally caused a magmatic shutoff and extensive along-strike terrane transfers in the Northern Andes.