

LITHOLOGICAL, GEOCHEMICAL AND GEOCHRONOLOGICAL CHARACTERIZATION OF THE SABANALARGA BATHOLITH, COLOMBIA.

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ABSTRACT: The Northwestern corner of South American Continent is composed of a mosaic of various terranes accreted to Amazonian Craton at different times, continental affinity terranes to the east and oceanic affinity terranes to the west. The two geodynamic domains are separated by a paleo-suture represented by the Cauca-Romeral fault system. Within this fault system is a collage of terranes with oceanic or continental affinities whose spatial and temporary relationships are still unclear. An important geological unit in the paleo-suture zone is the Sabanalarga Batholith (SLB). This is a north-south elongated batholith with an area of 410 km², this unit presents lithological and compositional heterogeneity, characterized by three facies (mafic-ultramafic, intermediate and felsic) with ages Ar-Ar around 95 Ma. The suture zone represented by the Cauca-Romeral fault system presents a highly complexity structural geology and still have an incomplete knowledge of the contact relations with SLB as well the original intrusive contacts due fault and remobilization. The SLB is divided into two bodies by the north-south Sabanalarga Fault. The West body intruded the oceanic affinity cretaceous rocks of the Embera terrane and features large xenoliths of basic granulites called Pantanillo Granulite. The East body intruded into the triassic metamorphic rocks of the Puqui terrane. Field relations, petrology, isotope geology and geochronology indicates that the SLB are actually three different bodies generated in different geological domains. The intermediate facies was generate in an oceanic arc as result of the partial fusion of the Pantanillo Granulite in the east border of the caribbean oceanic plateau. The felsic facies was generate in the continental arc as consequence of the subduction of the proto-caribbean plate under the South American plate. The mafic-ultramafic facies are oceanic crust trap in a suture zone. These results indicates the existence of two different arcs with similar period of formation and U-Pb ages but with different affinities, Hf-epsilon and subduction polarity. There were at least two subduction zones with different polarities in northwestern South America during the Cretaceous. The related arcs and the remainder oceanic crust were put side by side by the collision and continental scale faults movement related to the Caribbean Plate formation process.

KEYWORDS: SABANALARGA BATHOLITH, COLOMBIAN ANDES, CARIBBEAN PLATE.