# U-PB IN ZIRCON GEOCHRONOLOGICAL DATA OF THE ALTO CHAPÉU MASSIF, ARAÇÚAÍ BELT (ES)

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**ABSTRACT:** The Alto Chapéu Massif is a zoned igneous body that crops out in the south of Espírito Santo state, southeastern Brazil. It intrudes para and orthoderivated rocks belonging to the Araçuaí Neoproterozoic Mobile Belt. This massif has an approximately ellipsoidal shape and its major axis is oriented in the NW-SE direction, contrasting with the other NE-SW neighboring plutons, like Santa Angélica Intrusive Suite (G5 Supersuite). It corresponds to an I-type magmatism with low MgO contents, moderate alkali and ACNK ratios lower than 1. Combined petrography and geochemical data allows distinguishing three facies: Monzodioritic, sienitic and granitic facies. In Harker diagrams using oxides and trace elements, the sienitic facies plot between monzodioritic and granite facies and show linear trends with a range of approximately 54.5 to 73.00wt% silica. This work presents the results of the U-Pb zircon geochronology for the granite facies of the Alto Chapéu Massif obtained at São Paulo University by the LA-ICP-MS method. Cathodoluminescent images show at least two populations of typical igneous zircon grains, both are elongated prismatic bi-terminated with subhedral to euhedral face development and well developed oscillatory growth zoning. One of them present width to length ratios 4:1, shows a bimodal succession zoning with trace-element rich and poor bands, being interpreted as belonging to granite facies. Another one with width to length ratio 3:1 presents high luminescent core alternating with metamitic rims. The regular growth zoning is interrupted by textural discontinuities along which the original zoning is resorbed and succeeded by the deposition of new-growth-zoned zircon. This could reflect intermediate periods of Zr udersaturantion in the magma owing to large-scale mixing phenomena. The analyzed zircon grains yielded two concordant age of 666.1±9.8Ma and 531.5±3.6Ma both interpreted as magmatic crystallization. The first one is interpreted as crystallization age of host rock (Estrela orthogneiss), possibly correlated to the pre-collisional event. Such age has not yet been reported in the literature for this region, and is probably associated with magmatic zircon from the arc. The oldest arc age obtained so far in the region was 630Ma (Cangalha orthogneiss). The second is interpreted as the crystallization age of Alto Chapéu Massif, correlated with the post-collisional orogenic event of Araçuaí Mobile Belt.

**PALAVRAS-CHAVE:** ALTO CHAPÉU, ESPÍRITO SANTO, U-PB.