

SILICIC VOLCANISM ASSOCIATED TO THE CAMBIRELA PLUTONO-VOLCANIC SUITE, FLORIANÓPOLIS BATHOLITH, SC: PRELIMINARY DATA

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ABSTRACT: The Cambirela Plutono-Volcanic Suite (CPVS) represents part of the final stage of the Neoproterozoic post-collisional magmatism that composes the Florianópolis Batholith (FB) (ca. 590-580 Ma), located south of the Major Gercino Shear Zone (MGSZ), in the Internal Domain of the Dom Feliciano Belt (DFB). Isotopic data of Sm-Nd indicate, for the sources of the FB magmatism, the contribution of the remnants of Paleoproterozoic/Archaean lower crust gneisses with restricted addition of juvenile magmas. The plutonic unit of the CPVS comprises the Ilha Granite (biotite sieno to monzogranite with medium to coarse seriate alotriomorphic texture) and the Itacorubi Granite (biotite sieno to monzogranite with porphyritic texture immersed in a quartz-feldspatic matrix with coarse mafic enclaves). The volcanic unit of the CPVS comprises effusive and pyroclastic deposits. The U-Pb ages, obtained by zircon, of the Ilha Granite and the Cambirela Rhyolite are of 587 ± 6 Ma and 586.3 ± 2.5 Ma, respectively. Effusive deposits (Cambirela Rhyolite) are characterized by rhyolitic lava flows with porphyritic texture with quartz, K-feldspar and plagioclase phenocrysts and a fine matrix. Acid dikes are abundant in the whole sequence. Cambirela Ignimbrite is the unit used to group the pyroclastic deposits and are characterized by strongly welded ignimbrites with eutaxitic structure and a variable content of crystals, lithics and vitreous fragments; reomorphism is common and locally the rocks present a lava-like appearance. A preliminary volcanic stratigraphy is being proposed from field and petrographic works: Pyroclastic deposits – (1) crystal-rich ignimbrite with high content of fiammes (CRI), (2) crystal-poor ignimbrite with fine matrix and highly welded (CPI). Effusive deposits – (3) massive porphyritic rhyolite with phenocrysts of quartz and feldspar immerse in a quartz-feldspatic matrix (MPR) and (4) rhyolitic dikes that cut through the sequence (RD). Preliminary geochemical data indicate that the rocks of the volcanic unit are classified as rhyolites and alkali rhyolites. Lavas and ignimbrites are dominantly high-silica types with SiO₂ values greater than 70 wt% and slightly metaluminous to peraluminous character. The rocks are related to mildly alkaline series, as displayed on TAS and SiO₂ versus Zr/TiO₂ diagrams, where they show trends situated close to the boundary between subalkaline and silica-saturated alkaline fields, with a potassic character (4.12 – 7.07 wt.% K₂O). Silicic magmas have FeO_t/(FeO_t+MgO) ratios mostly higher than 0.9 that are typical for rhyolites associated with the alkaline series. Trace element patterns of rhyolites normalized against ocean-ridge granite values show similar patterns with low Ba and Sr and high to moderate HFSE (high-field strength elements). Chondrite-normalized REE patterns show an enrichment of REE. The fractionation between LREE and HREE is high ($La_N/Yb_N > 12$) and are typical of the alkaline series. The LREE fractionation is greater than that of HREE with La_N/Sm_N ratios higher than Tb_N/Lu_N ratios and a strong Eu negative anomaly is observed. In the tectonic settings diagrams these rocks plot in the post-collisional and “A” type granite fields.

KEYWORDS: NEOPROTEROZOIC, RHYOLITES, FLORIANÓPOLIS BATHOLITH.