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FLORIANÓPOLIS BATHOLITH – THE ROOTS OF AN EDIACARAN MAGMATIC ARC GENERATED DURING THE GONDWANA AMALGAMATION, DOM FELICIANO BELT, SANTA CATARINA STATE, SOUTH BRAZIL.

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The 1200km long Granite Belt (GB) represents the roots of a Neoproterozoic magmatic arc that occupies the entire south-eastern portion of Brazil and Uruguay, comprising the granitic batholiths that occur at SSE of Major Gercino (SC) - Cordilheira (RS) - Sierra Ballena (UY) Suture Zone. The Granite Belt is the petrotectonic Internal Domain of the Dom Feliciano Belt being composed of Florianópolis (SC) and Pelotas (RS) batholiths in south Brazil and Aiguá in Uruguay. Rouf pendants of metasedimentary rocks are observed along the entire belt. The Florianópolis Batholith is made up of three major unities: Aguas Mornas – strongly deformed orthomigmatites with basic-intermediate mesosomes and felsic leucosomes; São Pedro de Alcantara – slightly foliated biotite (hornblende) granodiorites to monzogranites with amphibolite to dioritic mafic enclaves; Pedras Grandes – non deformed equigranular to porphyritic pink syeno to monzogranites and felsic volcanics representing the youngest igneous rocks related to the magmatic arc evolution. U-Pb zircon ages (SHRIMP+LAICPMS) spans in the 640-590Ma interval with most close to 600 Ma. ⁸⁷Sr/⁸⁶Sr(i) around 0.710, moderately negative epsilon Nd values (-2 to -8) and zircon negative epsilon Hf values characterize the involvement of the continental crust in the generation of Florianópolis Batholith. Positive zircon epsilon Hf values are restricted to the Laguna Granite of the Pedras Grandes Suite being the first indication of Neoproterozoic juvenile accretion in the entire Granite Belt. Sr, Nd and Hf isotopic values of the Florianópolis Batholith points out a different signature when compared to the other domains of the Dom Feliciano Belt. Similar conclusion can also be reached when the detrital zircon age pattern of its metasedimentary cover, where 1.0-1.2 Ga zircon ages predominates, is compared with the regional supracrustal successions of the Central Domain of the DFB (Brusque Belt). On the other hand considering the similarities between the Granite Belt in South America and the western domain of Kaoko Belt (Skeleton Coast) in Africa, a correlation between these domains can be made. It is proposed here that the Granite Belt has been developed in the active margin of Angola and Kalahari cratons as a result of the eastward subduction of the Adamastor Ocean oceanic crust. The resulting magmatic arc (Granite Belt) would be associated with the evolution of the Kaoko, Gariep and Saldania belts of Southwestern Africa. Only during the Ediacaran period the Granite Belt collided against the “South America” becoming part of the Dom Feliciano Belt.