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NEW ZIRCON U-PB LA-ICP-MS AGES ON THE SÃO JOÃO BATISTA GRANITIC SUITE, SANTA CATARINA STATE, BRAZIL

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In the southern Brazilian state of Santa Catarina the Dom Feliciano Belt, formed by the tectonic juxtaposition of different crustal blocks during the Brasiliano-Pan African Orogenic cycle, is divided into three domains. In the central domain, three granitic suites intrude the metavolcanosedimentary sequence of the Brusque Group and its basement, the Camboriú Complex: São João Batista (JSBS), Valsungana (VS) and Nova Trento (NTS), from the oldest to the youngest. This extensive magmatism is responsible for the thermal peak of the sequence's metamorphic evolution.

The SJBS comprises isotropic leucocratic to hololeucocratic, equigranular granites, usually grey to white in color. The presence of muscovite as the main mafic mineral is distinctive of this suite, along with the occasional occurrence of other peraluminous accessories such as garnet and tourmaline. It is intruded by the VS, indicating its stratigraphic position as the oldest intrusive suite. Differently from the other intrusive suites in the Brusque Group, the SJBS had not yet been dated by geochronological methods. New U-Pb LA-ICP-MS dating of single zircons of the São João Batista (SJBG), Tijucas (TG) and Catinga (CG) granites obtained mean $^{206}Pb/^{238}U$ crystallization ages of 606±17, 601±5 and 594±9 Ma. In the SJBG, abundant rounded inherited zircon cores evidence an important contribution from the metasedimentary rocks, with Paleo- (2,00 – 2,21 Ga) Meso- (1,02 – 1,16 Ga) and Neoproterozoic (ca. 750 Ma.) ages. This pattern can be compared to the detritic zircon record of the Brusque Group. Zircon crystals from TG and CG do not show conspicuous rounded nuclei, but have inherited cores nevertheless. The Neoproterozoic record is especially evident in the TG, where they have a mean $^{206}Pb/^{238}U$ age of 627,1±7,5 Ma, but the sample contains only a very limited presence of Paleoproterozoic nuclei (ca. 2,15 Ga). Of the three studied rocks, the CG has the smallest record of older crystallization events, with only a restricted Neoproterozoic (638 – 683 Ma) contribution. All three suites show evidence of recent loss of radiogenic material, resulting in some young and discordant spot analyses.

The new crystallization ages add up to the majority of latest ages in the other two suites, which indicate that the granitic intrusions in the Brusque Group took place somewhere in the 590-610 Ma time span. However, field relationships such as intrusive contacts and the presence of xenoliths remain the best criteria for establishing the relative age of the different units. In fact, the available ages shows no evident trend between the three units. This rather scattered behavior suggests that not all granitic bodies belonging to a same suite were emplaced synchronically, and might have had long-lived crystallization histories. Little time, however, has separated each suite's intrusion, reflecting not the time of granite formation but mainly their different crustal level sources.