

SYN- AND POST-INTRUSIVE DEFORMATION OF PORPHYRIC DYKES: A PAN-AFRICAN STORY FROM THE SYNTECTONIC PORTO-BELO GRANITOID COMPLEX (SANTA CATARINA, BRAZIL)

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In Santa Catarina (Brazil) the Major Gercino Shear Zone forms part of the Southern Brazilian Shear Belt which follows the Pan-African orogenic trends and probably marks the evolution of a major crustal discontinuity in a late- to post-collisional environment covering a period of at least 80 Ma in the late-Proterozoic. In the Porto Belo region a dextral-transpressive segment of this shear zone is intruded by successive pulses of syntectonic granitoids the latest of which are represented by porphyric dykes of the Zimbros Intrusive Suite. The dykes show various features of magmatic and solid-state deformation which may be related to an active regional stress field during dyke intrusion. (i) K-feldspar and quartz phenocrysts are both aligned in a steeply dipping schistosity and a strong lineation. The latter is more highly inclined than the regional subhorizontal lineation in the granitoid wall rocks and is interpreted as a combined result of regional shear stress and ascent of magma during intrusion. (ii) Feldspar and quartz show internal high-temperature deformation features which indicate deformation of the ascending crystal mush during decreasing temperatures as well as highly different strain rates. (iii) Low-temperature deformation features of quartz reflect the regional greenschist facies deformation related to late stage of the transcurrent shearing. In general, it will be exemplified in which way the microstructures of the dykes can be used to unravel the late stage of the intrusion history of the syntectonic igneous rocks of the Southern Brazilian Shear Belt.