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METABASIC ROCKS FROM THE ITAIACOCA GROUP: U-PB ZIRCON AGES AND TECTONIC IMPLICATIONS, SOUTHERN BRAZIL

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Abstract

Geologic studies carried out in the southern portion of the Itaiacoca Belt allowed recognize three major geologic units, represented, from bottom to top, by metarkoses (with acid volcanic contribution), stromatolitic metacarbonatic rocks (that encompass the studied metabasic rocks), and metapelitic-metapsamitic rocks. The U-Pb analyses of zircons of acid metavolcanic rocks yield ages of 628 ± 18 Ma (SHRIMP) and 636 ± 30 Ma (TIMS), quite close to the metamorphic event recorded in the Itaiacoca Group (628-610 My).

The metabasic rocks occur as bodies of average meter-sized thickness, which are elongated along a NE-SW general strike. They are usually equigranular, fine- to medium-grained, greenish-gray when weakly weathered, and contain plagioclase, augite, (rare) hornblende, and quartz, as well as actinolite, epidote/zoisite, chlorite and biotite, indicating greenschist facies metamorphism (chlorite or biotite zone). These bodies (possibly sills) are concordant with the metacarbonatic host rocks and present a geochemical behavior similar to that of the subalkaline tholeiitic basalts, suggesting distensional environments. The U-Pb zircon ages for metabasic rocks are distributed in the 1.000-900 Ma interval, representing the main period of zircon crystallization and emplacement of the basic lithotypes.

Such geologic scenario at the end of the Mesoproterozoic/beginning of the Neoproterozoic (1.000 - 900 Ma) is related to a distensional regim associated to the formation of these basic bodies representing the minimum age for the deposition of the carbonatic platform. K-Ar data (fine sericite fractions) characterize the end of the Neoproterozoic (628-610 Ma) as the time of closing of the basin and associated metamorphism, which is very close to the acid volcanism (636-628 Ma) and granitic plutonism (Três Córregos: 630-600 Ma and Cunhaporanga: 620-600 Ma granitic batholiths) adjacent to the Itaiacoca Belt, and admitted as probable magmatic arcs.

ACCEPTED as Poster Presentation

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