

## AGE CONSTRAINTS FOR THE SERRINHA BLOCK LITHOSPHERE BASED ON INHERITED ZIRCONS FROM THE NEOPROTEROZOIC BRAUNA KIMBERLITE FIELD, SÃO FRANCISCO CRATON, BAHIA, BRAZIL

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**RESUMO:** The  $678 \pm 13$  Ma Brauna Kimberlite Field (Donatti Filho et al. in preparation) is located on the northeastern part of the São Francisco Craton, Bahia State. It forms part of a limited Neoproterozoic alkaline magmatic event of the northern part of South America. The most important kimberlitic pipes, Brauna 03 and Brauna 07, were studied as a probe to understand the São Francisco Craton lithosphere beneath the Serrinha block. Fifty-four inherited zircon grains were analysed for U-Pb ages using the SHRIMP. The obtained ages were compared with data in the literature for the regional rocks. All zircon grains were considered to be xenocrysts, or from xenoliths in the kimberlitic magma. Owing probably to the small exposition area of the Brauna kimberlitic field, the zircons carried up more information about the Palaeoproterozoic Rio Itapicuru greenstone belt rather than from the basement represented by the Archaean Serrinha Block. The zircon ages spread the time span 2,107-2,223 Ma and no Archaean zircons were found. Zircon grains morphology and the  $207\text{Pb}/206\text{Pb}$  ages indicate eight distinct age populations (i.e. 2,107-2,117 Ma; 2,127-2,138 Ma; 2,138-2,148 Ma; 2,148-2,161 Ma; 2,161-2,168 Ma; 2,168-2,199 Ma; 2,199-2,209 Ma and 2,209-2,223 Ma). The most frequent zircon age populations ( $\sim 2,150$ -2,170 Ma) is related to the Palaeoproterozoic Nordeste granodiorite, which hosts the whole kimberlite field. The second and the third most frequent populations are  $\sim 2,125$  Ma and  $\sim 2,200$  Ma respectively, representing perhaps, the Teofilândia and Barrocas granodiorites; however no rocks were found so far with ages of the last population. The younger 2,029-2,107 Ma population shows a concordance outside of  $100 \pm 10\%$ , however the data are very reliable on the basis of ages of granites and felsic volcanic sequence of the Rio Itapicuru greenstone belt. In general, only the Palaeoproterozoic Rio Itapicuru greenstone belt has contributed material to the Brauna Kimberlite Field. The results also suggest that the Cryogenian Brauna Kimberlite Field could be linked with the break-up of the Rodinia supercontinent, probably reflecting reactivation of a Neoproterozoic fault system in the area.

**PALAVRAS-CHAVE:** SÃO FRANCISCO CRATON; KIMBERLITE EMPLACEMENT; ZIRCON U-PB DATING.