BEHAVIOR OF U-PB ZIRCONS ON THE SÃO FRANCISCO CRATON MARGINS, BRAZIL

ELTON LUIZ DANTAS[1]; ROBERTO VENTURA SANTOS[1]; REINHARDT ADOLFO FUCK[1]; BENJAMIN BLEY DO BRITO NEVES[2]

(1) Universidade de Brasília; (2) Universidade de São Paulo
Email: elton@unb.br

Craton borders are tectonic active regions in which are commonly observed crustal reworking processes, detachment features and intense fluid percolation. These regions are also characterized by reactivation of preexisting structures such as fault zones, kilometer long fractures and even aulacogens, which may evolve to mobile belts and other orogenic features.In central Brazil the limits of the São Francisco Craton were initially defined by Almeida (1977) who proposed a series of Brasiliano folded belts surrounding it. Along the western border this limit is located in the region of São Domingos, GO, where the São Domingos volcano sedimentary sequence crops out, characterized by low grade metamorphic rocks, including phyllites, carbonate-bearing metasiltstones and metavolcanic rocks. These low grade rocks are intruded by tonalites, granites, mafic dykes and a deformed ultramafic body. The sequence overlies basement gneiss of Paleoproterozoic to Archean age. Along the northern margin of the São Francisco Craton, in the region of Petrolina and Juazeiro (BA-PE), located more than 1 000 km northeastwards, the dominant unit is composed of high grade Archean age gneisses and migmatites associated to supracrustal rocks.What do they have in common? In both areas a large amount of metamict zircons is are commonly found, hampering precise U-Pb dating and age determination. We suggest that these zircons were affected by fluid migration associated to craton margin destruction and reworking crustal events during tectonic processes. We also show that these processes disturbed the whole geochronological system. Among possible mechanisms that may have promoted this pervasive fluid circulation, we propose a mantle plume component acting in the craton boundaries.

REFERENCE

ALMEIDA, F. F. M. 1977. O Craton São Francisco. Revista Brasileira de Geociências, 7:349-364.