THE UAUÁ MICROBLOCK, NORTHERN S. FRANCISCO CRATON: A KEY AREA TO UNDERSTANDING CRUSTAL GROWTH DURING GLOBAL SPREAD OF PLATE TECTONICS IN THE MESOARCHAEAN

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RESUMO: When plate tectonics began on planet Earth is a subject of major international intense. Although indirect evidences from eclogite mineralogy in diamond inclusions and Hf isotope data in detrital zircon grains suggest that subduction, hence plate tectonics became global after ca. 3.2-3.0 Ga, only a few field evidences of plate tectonics in the Mesoarchaean have been reported. Here it is shown that the ca. 3.2-2.95 Ga Uauá microblock (or exotic terrane) in the northernmost portion of the São Francisco Craton is a potential area to study the geological processes responsible for the continental crust formation and growth during a time of global spread of plate tectonics. The Uauá microblock is a minor exotic terrane, in the Serrinha block, that is limited to the west by the 10 km-wide Caldeirão shear zone and to the east by narrow shear zones that separates it from the Rio Capim greenstone belt. It is composed of middle to lower crustal rocks, whose evolution is completely different from that of the adjacent terranes. So far, the most widespread rocks in the Uauá microblock are ca. 3.2-2.9 Ga TTG gneisses. The northern area of the block is occupied by a ca. 3.1-3.2 Ga complex of layered anorthosite, diorite and leucodiorite with geochemical signatures similar to that of primitive oceanic arc plutons. This complex was thrust towards the west and contains a few tectonically imbricated sheets of ca. 3127 Ma N-MORB-like mafic rocks that were metamorphosed to high-pressure granulite conditions at 2.82 Ga. Towards Uauá, in the south, the above diorite complex lies in fault contact with a N-verging nappe of intercalated and folded sheets of ca. 2954 Ma sanukitoids, 2955 Ma grey gneisses and 3075 Ma gabbroic lenses. The eastern and southern areas of the Uauá microblock are under study and are composed mainly of grey gneisses and coarse grained tonalite-granodiorite bodies; examples of the latter are the more localized ca. 3098-3079 Ma calc-alkaline Capim Tonalite and the larger ca. 3085 Ma Caratacá porphyritic tonalite-granodiorite orthogneiss that crops out continuously nearly to the southern end of the Uauá microblock. All of the above referred to rock suites were intruded by 2726 Ma norite and 2624 Ma tholellite dyke swarms. The Uauá terrane achieved its final fault-bounded shape during Palaeoproterozoic extrusion tectonics (2.08-2.04 Ga) associated with the evolution of the Itabuna-Salvador-Curaçá Orogen. The recognition of ca. 3.1 Ga anorthosite-diorite arc complex, 3.1 calc-alkaline tonalite-granodiorite plutons, 2.95 Ga sanukitoids that require a metasomatised mantle wedge for their origin, and 2.82 Ga N-MORB-like high-pressure mafic granulites that require mininum pressures of 15 Kbar (55 km depth) to stabilise garnet and clinopyroxene, and nappes older than 2.73 Ga (age of norite dykes) all point to the existence of processes that may be explained by plate tectonics. Our findings indicate that plate tectonics might have been in operation, more or less like we know it today, as far back in time as the mid-late Mesoarchaean.

PALAVRAS-CHAVE: ARQUEANO, TECTÔNICA DE PLACAS, MICROBLOCO UAUÁ