51º CONGRESSO BRASILEIRO DE

GEOLOGIA

13 A 17 DE OUTUBRO DE 2024

BELO HORIZONTE - MG

Centerminas Expo

ANAIS

ID do trabalho: 2375

Área Técnica do trabalho: TEMA 17 - Tectônica e Evolução Geodinâmica

Título do Trabalho: LINK BETWEEN CRUSTAL MELTING AND MAGMA EMPLACEMENT DURING WEST GONDWANA FORMATION IN HIGH-GRADE TERRANES OF SE BRAZIL: INSIGHTS FROM U-Pb ZIRCON ANALYSIS AND TECTONIC IMPLICATIONS

Forma de apresentação: Oral

Autores: Vieira, T A T[1]; Schmitt, R S[2]; Mendes, J C[2]; Moraes, R[3]; Trouw, R A J[2]; Lopes, R A S[2]; Martins, G G[2]; Andrade, M S[4];

Instituição dos Autores: (1) UFRJ/UERJ - Rio de Janeiro - RJ - Brasil; (2) UFRJ - Rio de Janeiro - RJ - Brasil; (3) USP - São Paulo - SP - Brasil; (4) UFOP - Ouro Preto - MG - Brasil;

Resumo do trabalho:

The Ediacaran-Cambrian Búzios orogeny, is recognized in the eastern part of Ribeira Belt, southeastern coast of Brazil, known as the last orogen that amalgamates West Gondwana. High-grade metamorphism, partial melting, and continental crust differentiation were significant processes in this collisional orogen. To determine the timing of subduction, collision, and partial melting, U-Pb secondary-ion mass spectrometry (SIMS) zircon analyses were conducted on stromatic migmatites derived from a reworked Paleoproterozoic crust, from the Cabo Frio Tectonic Domain. This domain consists of a Paleoproterozoic basement (Região dos Lagos Complex) tectonically interleaved with Neoproterozoic supracrustal rocks (Búzios-Palmital successions). Two phases of melt crystallization, approximately at 570 Ma and 530 Ma, were identified and compared with the magmatic evolution of the adjacent Neoproterozoic Oriental Terrane, which is juxtaposed with Cabo Frio Tectonic Domain along a high strain zone interpreted as a suture. The Oriental Terrane comprises a batholith (600-570 Ma) to the west and an Ediacaran magmatic arc (570-540 Ma) to the east, near the contact with the Paleoproterozoic continental crust of the Cabo Frio Tectonic Domain, the later interpreted as the paleo-margin of the Angola Craton. The first melt crystallization phase coincides with the Ediacaran magmatic arc and may be related to the initial subduction of the paleo-margin. There is a time interval (570-530 Ma) with no melt crystallization, during which prograde metamorphism causes monazite-zircon dissolution at granulite facies. Between 530-515 Ma, the Cabo Frio Tectonic Domain experienced the second and more extensive phase of melt crystallization, while the Oriental Terrane had a gap in its magmatic record. Despite the terranes being in tectonic contact at this time, no inter-terrane melt migration occurred, likely due to horizontal stresses and the onset of collision. The relationship between magma emplacement in the Oriental Terrane and melting in the Cabo Frio Tectonic Domain is controlled by the tectonic setting, where the Paleoproterozoic continental crust underwent partial subduction below the Neoproterozoic terrane, the more buoyant upper plate.

Palavras-Chave do trabalho: anatexis; Cabo Frio Tectonic Domain; Ediacaran-Cambrian Búzios Orogen; magma emplacement; Oriental Terrane;