



EPITHERMAL AND PLUTONIC GOLD MINERALIZATIONS RELATED TO PALEOPROTEROZOIC ACID MAGMATISM IN THE TAPAJÓS GOLD PROVINCE, AMAZONIAN CRATON, BRAZIL

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The Tapajós Gold Province (TGP) is part of the Tapajós-Parima geologic province, that includes ~2.1 Ga volcano-sedimentary sequences (Jacareacanga Group) and the magmatic arcs of the Cuiú-Cuiú Complex (~2.01 Ga), Creporizão Intrusive Suite (1.97-1.95 Ga), Rio das Tropas Tonalite (~1.90 Ga) and Parauari Intrusive Suite (~1.88 Ga). Andesitic to rhyolitic volcanic and volcanoclastic rocks of the Iriri Group (1.88 Ga) overlie plutonic rocks and are cut by anorogenic Maloquinha Intrusive Suite (~1.87 Ga). Paleoproterozoic fluvial to marine sequences (Buiuçú Formation), and several mafic intrusion events are also identified in the TGP. Paleoproterozoic gold mineralizations in the TGP are mainly classified as mesothermal orogenic lodes, intrusion-related gold systems, and epithermal and mesothermal lodes in shear zones. Recently, it was discovered a 1.869 Ga epithermal high-sulfidation (quartz8722;alunite) and low-sulfidation (adularia-sericite) gold and base metal mineralizations hosted in calc-alkaline volcanic and volcanoclastic rocks of the Iriri Group. In the high-sulfidation mineralization, hydrothermal breccias are strongly affected by high-temperature advanced argillic alteration, with alunite, natroalunite, woodhouseite-svanbergite, andalusite, diaspore and enargite, besides argillic and propylitic hydrothermal alterations. Over the hydrothermal breccia pipe occurs a hematite-rich silica cap and in the deeper zones sericitic alteration is also present. The epithermal high- and low-sulfidation mineralizations are genetically linked to

stocks of hydrothermalized granophyry, and rhyolitic and rhyodacitic porphyry dikes and are hosted by late ring composite volcanoes, related to evolution of nested ash-flow caldera complexes. The caldera genesis is attributed to emplacement of shallow late- to post-tectonic calc-alkaline batholiths of the Parauari Intrusive Suite in back-arc rifts. The mesozonal relatively reduced Batalha Granite hosts gold mineralizations and shows extensive early Na- and K-metassomatism followed by intense propylitic and sericitic hydrothermal alteration. The Batalha gold mineralization share common characteristics with Au-rich porphyry mineralizations. Thus, the existence of Paleoproterozoic porphyry Cu-Mo- Au systems, associated to epithermal mineralizations, related to granites similar to the Batalha, but more shallow and oxidized than it, is also suggested.

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