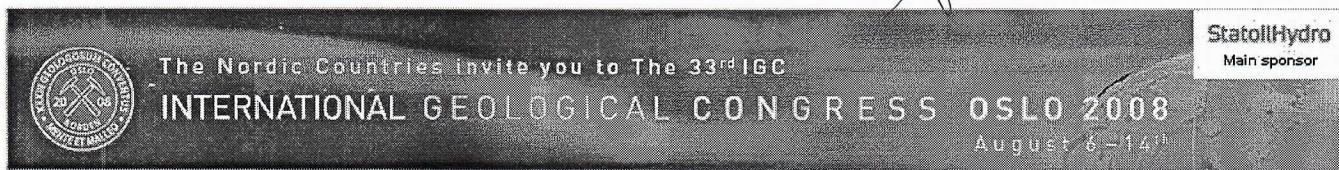


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The Uatumã magmatic event (~2.0-1.75 Ga) comprises high-K calc-alkaline and alkaline volcanic sequences and granitoids. These rocks are distributed for >1,000,000 km<sup>2</sup> in the Tapajós?Parima (Paleoproterozoic) and Central Amazon (Archean, reworked in Paleoproterozoic) provinces. The Tapajós Gold Province (TGP), located at the boundary of these provinces, was formed by a 2.10 to 1.87 Ga ocean?continent orogeny. The basement of the Uatumã volcanic rocks (Iriri Group; 1.88 Ga) in TGP is constituted by the volcano-sedimentary Jacareacanga Group (~2.1 Ga), the magmatic arc-related Cuiú-Cuiú (~2.01 Ga), Creporizão (1.97?1.95 Ga), Rio das Tropas (1.90 Ga), Parauari (1.88 Ga) granitoids, and A-type Maloquinha granites (1.87 Ga). These units are covered by Paleoproterozoic fluvial and marine units and the alkaline Santa Rosa volcanic complex, generated in large fissures recently recognized near TGP (Xingu region). The Iriri Group is represented, from bottom to top, by calc-alkaline andesites, rhyolites and volcaniclastic rocks. Ash-flow caldera complexes (up to 50 km long) formed during the emplacement of the late- to post-tectonic calc-alkaline Parauari granites. Andesitic, rhyolitic and ignimbritic flows constitute the pre-caldera phase; ash-tuff eruptions the syn-caldera units, and rhyolite and ignimbrites the post-caldera event, which encompasses ring composite volcanoes with hydrothermal breccias pipes and resurgent domes. Tuffs, epiclastic sandstone and lacustrine sediments form the intra-caldera deposits. High-sulfidation (HS) Au and low-sulfidation (LS) Cu?Mo(?Au) mineralizations are associated with rhyolitic and rhyodacitic granophyre and porphyry stocks and dikes of the ring volcanoes. The HS Au mineralization occurs in hydrothermal breccias pipes affected by advanced argillic alteration, with alunite (1.867 ± 2 Ga, <sup>40</sup>Ar/<sup>39</sup>Ar), natroalunite, pyrophyllite, andalusite, diaspore, rutile, kaolinite?dickite, woodhouseite?svanbergite, pyrite, chalcopyrite, bornite, covellite and enargite?luzonite. Advanced argillic without alunite, argillic and propylitic haloes sequentially envelope this zone, covered by a hematite-rich silica cap. Sericitization affected deeper parts of the hydrothermal system, close to the felsic subvolcanic intrusions. The geological setting of the LS mineralization is similar to that of the HS. Uatumã intrusive granites and porphyries host mesozonal and epizonal reduced Au?(Cu) mineralizations, with early K-metasomatism followed by propylitization, sericitization and minor argillization. The overall geological data indicates a high potential for the occurrence of well-preserved Paleoproterozoic HS and LS deposits in the Iriri Group, Cu?Mo?Au porphyry in shallow Parauari granites, and Intrusion-Related Gold Systems in later alkaline volcanic rocks and associated granites. TGP ?garimpos? produced > 600 tons of gold, and the new data favor the discovery of large volumes of primary gold not only in TGP, but in the whole Uatumã unit.

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