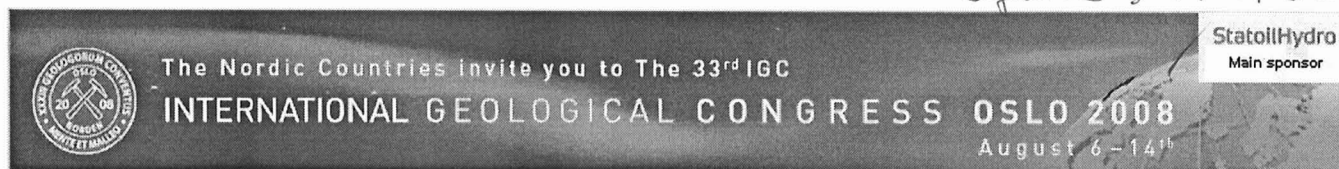


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The Paleoproterozoic Uatumã volcano-plutonic event is represented by broad effusive and explosive bimodal volcanism in the center-south region of the Pará state, near São Félix do Xingu city and the Carajás Mineral Province. The Uatumã volcanic rocks are unmetamorphosed and comprise the basal Sobreiro and the upper Santa Rosa formations. The Sobreiro Fm. is composed of massive andesitic to rhyodacitic flows and volcanoclastic facies, which were covered by ash-tuffs, lapilli-tuffs, and massive polymictic breccias with minor mafic crystals tuffs. These volcanic rocks have clinopyroxene, amphibole, and plagioclase phenocrysts in a microgranular pilotaxitic or trachytic groundmass with apatite and Fe-Ti oxide accessories. Their geochemical signature is similar to those of volcanic-arc related granitoids, with high-K calc-alkaline and metaluminous affinity. This could indicate generation of this unit in large (> 30 km diameter) ash-flow calderas in volcanic-arc setting. Alternatively, the high-K calc-alkaline magmas could have been related to anorogenic extensional environment, originated by anatexis of crustal metaluminous metamorphic protoliths.

The upper Santa Rosa Fm. encompasses massive rhyolite and rhyodacite composed of coherent facies rocks with quartz, potassic feldspar and plagioclase phenocrysts in groundmass formed by intergrowth of quartz and potassic feldspar, locally spherulitic. Biotite is a varietal phase and zircon, apatite and Fe-Ti oxides accessories. Ignimbrites (ash-flow tuffs), lapilli-tuffs, and felsic crystals tuffs constitute volcanoclastic facies. The deposition of this formation was controlled by large NE-SW fissures. Stocks and dikes of granitic porphyries with mineralogical and geochemical characteristics identical to the rhyolites occur associated. These upper volcanic rocks and associated porphyries and granites exhibit intraplate geochemical affinity, peraluminous signature and transitional subalkaline to alkaline characteristics. Collectively, geochemical and geochronological data point to generation of the upper volcano-plutonic rocks in the final stage of Tapajós-Parima orogenic event related to intraplate rifts. Large zones of potassic, propylitic, and sericitic hydrothermal alteration, similar to those described associated to Paleoproterozoic high- and low-sulfidation gold and Cu-porphyry deposits in Tapajós Gold Province, were identified in these sequences. Pb-Pb zircon ages of volcanic and porphyries range between of ~1888 and 1879 Ma indicating a short transition from the calc-alkaline to the alkaline magmatism. Later tin-bearing A-type granitic massifs (~1860 Ma) of the Velho Guilherme Intrusive Suite intrude all volcanic units.

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