



## **PALEOPROTEROZOIC ASH-FLOW CALDERAS IN TAPAJÓS GOLD PROVINCE, AMAZONIAN CRATON, BRAZIL: TECTONIC SIGNIFICANCE**

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The Tapajós Gold Province (TGP) is located in the limit of two geochronologic provinces (Tapajós-Parima and Central Amazon), interpreted as products of an orogenic event ( $\sim 2.10$ - $1.87$  Ga) that resulted in the generation of four magmatic arcs, Cuiú-Cuiú (2.0 Ga), Creporizão (1,97-1,96 Ma), Tropas (1,91-1,89 Ma) and Parauari (1,92-1,88 Ma), followed by intense acid-intermediary volcanism (Grupo Iriri  $\sim 2.0$ - $1.88$  Ga) and late- to post-orogenic granitic intrusions (Maloquinha Intrusive Suite 1.88 Ga). Ignimbritic and rhyolitic flows overlie andesitic flows. Late domes, cones and volcanic vents are formed by intercalated volcanoclastic rocks and rhyolites. These were distributed in circular depressions up to 22 km of diameter limited by faults, with radial and ring fractures filled by volcanoclastic and epiclastic rocks and subordinate chert, that are interpreted as a Paleoproterozoic ash flow calderas. The pre-caldera phase is marked by extensive andesitic flows followed by the eruption of rhyolitic magmas and ignimbritic flows responsible for the formation of stratovolcanos and rhyolitic domes. The sin-caldera phase is marked by the eruption of great amount of piroclastic material, ignimbrites and rhyolite, that provoked the collapse of the magmatic chamber and the consequent collapse of the caldera, resulting in the explosive eruption of magmas rich in crystals through faults, vents and ring fractures. The post-caldera phase is marked mainly by rhyolitic magmatism, that resulted in the formation of small composite volcanos and volcanic vents along faults and in the border and within of the calderas. These volcanos are composed by rhyolite, ignimbrites, tuffs and welded tuffs. The caldera was filled by tuffs, epiclastic sandstone and claystone with chert layers. The final stage is marked by the emplacement of shallow granites and porphyry stocks, and dikes and dacite, that provoked intense hydrothermal alteration, resulting in epithermal low- and high-sulfidation mineralizations. Ash flow calderas

are typical of distensive areas in thick crusts and, therefore, deformation absence and regional metamorphism in the volcanic sequences, granites and porphyries, and the volcanics age ( $\sim 1,88$  Ga) define an distensive event, interpreted as associated to the rift formation in back-arc environment, implying in the redefinition of the stages of compressional orogenic events in the Tapajós-Parima Province.

Acknowledgments: Fapesp (grant 98/2567-6), Pronex/CNPq/UFPA (662103/1998) and IGCP 426 (Granite and Proterozoic Lithospheric Processes)