

## **Alta Floresta Gold Province, Amazonas Craton: studies from Peixoto de Azevedo-Flor da Serra-União do Norte Targets.**

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New discoveries have been announced by a major mineral company in the Peixoto de Azevedo-União do Norte region, related to the paleoproterozoic Alta Floresta Gold Province (AFGP), in the Amazonas craton. This fact motivated the research group from UNICAMP to present what it has been done in the province. From the last 5 years, this group has been mapped (1:50.000) Peixoto de Azevedo-Flor da Serra region, and União do Norte porphyry region (1:5.000). In more detail, it has been studied aspects of structural control of particular targets, granitoids petrogenesis, and mineral changes in the alteration-mineralization zones of the following deposits: Jaca Au-base metal brittle veinlet-system; Peteca-João Fidelis Au-Cu shear vein-system; Paraíba shear vein-system; and Luiz Bastos Au-base metal vein-veinlet system. Develop exploration models for the region has been a difficult task, because of the thick saprolitic cover, the heterogeneity of the structural domains from highly sheared to brittle environment, and the presence of calc-alkaline to alkaline granitoids of different ages (from 2.04 to 1.75Ga). At the Jaca Au-base metal deposit, the main hydrothermal alteration is related to muscovitic (illite + polycrystalline quartz + muscovite + pyrite  $\pm$  chlorite  $\pm$  chalcopyrite  $\pm$  sphalerite) zone, chloritic (chlorite  $\pm$  epidote  $\pm$  pyrite) zone, and several veinlet systems (quartz, pyrite, chalcopyrite, and minor sulphides) in grauwackes, mafic dykes and quartz-feldspathic porphyry. Five veinlet systems are classified: ( $V_{1a}$ ) quartz, pyrite and sericite; ( $V_{1b}$ ) epidote-chlorite; ( $V_2$ ) quartz sheared system; ( $V_3$ ) quartz-pyrite-chalcopyrite stockwork; ( $V_4$ ) monomineralic milky quartz composition; and ( $V_5$ ) kaolin stockwork. At Peixoto de Azevedo-Flor da Serra region, several foliated granitoids occur along NW-SE first order shear zones, which also host several Au-Cu ore deposits. The high K, Rb and LILE *Gringo granitoids* ( $2037 \pm 5.9$ Ma) are the oldest in the province. The *Braço Norte garnet leucogranites* ( $2006 \pm 4.7$ Ma) are related to the peraluminous crustal leucocratic association, and garnet-kyanite xenoliths indicate high pressure formation. *Biotite tonalites* (2014Ma), *Naiuram granodiorites*, *dacite dikes* ( $2012 \pm 13$ Ma) and *hornblende quartz-diorites* ( $1981 \pm 8.1$ Ma) are classical medium-K calc-alkaline arc-related granitoids. These foliated granitoids may represent a magmatic arc roof related to Tapajós-Parima Orogenic Belt, according to the heterogeneous ductile-subsolidus deformation, and the kyanite-garnet xenoliths in garnet leucogranites. In this context, the ductile shear vein-type Au  $\pm$  Cu deposits, hosted by phyllonites are the most common, as the Peteca-João Fidelis, Buriti, Paraíba deposits, among others. Similar structural orientation and lateral grading among mylonitic foliation in granitoids, phyllonites, and ore quartz veins are an evidence of contemporaneous formation, suggesting an ore-forming hydrothermal system in a ductile deformational environment.

However given the complex nature of the shear vein-type deposits and the brittle vein-type deposits in the AFGP, it has been considered an overlap of hydrothermal systems. Further researches have been developed by university and Jr mining companies, and these results will be important to understand the chronology of shear zones, granite emplacement, hydrothermal zones and Au-Cu mineralization.