

GEOCHEMICAL AND STRUCTURAL CONSTRAINTS ON THE PAIOL GOLD DEPOSIT, ALMAS GREENSTONE BELT, BRAZIL

1 FERRARI, M. A. D., 1 CHOUDHURI, A. 1 Institute of Geosciences, UNICAMP, Campinas, Brazil.

The Almas greenstone belt is located at the southern part of the Tocantins State, Brazil. The greenstone consists of a lower, thick package of metavolcanic rocks (Córrego Paiol Formation) that is followed by a relatively thin metasedimentary unit at the top (Morro do Carneiro Formation). Late kinematic granitic intrusions cut the supracrustal sequence. Samples of metabasaltic rocks were analysed for major and trace elements to seek their provenance and palaeotectonic environments. Chemical data reveal that these rocks have continental affinities and strongly suggest that they were originally formed at within-plate settings, probably associated to continental rifts. The metavolcanic rocks were metamorphosed up to amphibolite facies and then retrogressively altered to greenschist facies assemblages along with a later, hydrothermal alteration phase. The higher grade metamorphism is akin to a regional tectono-metamorphic event (D_n), whereas the retrograde metamorphism and the hydrothermal alteration zones are linked to late sinistral strike-slip shear zones (D_{n+1} event). The greenstone hosts some important gold mineralizations, the Paiol deposit being one of them. In this deposit, mineralized zones are associated with metabasaltic rocks but also with granitic intrusion. The first are controlled by D_{n+1} shear zones and the latter are coupled to structurally shallower, radial, brittle shear zones (D_{n+2} event). Our preliminary models indicate that the main ore shoots are placed where the mylonitic foliation (S_{n+1}) is cut by extensional brittle faults of the D_{n+2} event. These faults possibly served as conduits for the raise and transport of gold-rich hydrothermal fluids.