

## **GENESIS OF THE SERRA LESTE AU-(PD-PT) DEPOSIT, CARAJÁS PROVINCE, BRAZIL.**

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The Serra Leste Au-(Pt-Pd) mineralization is hosted by a folded and low-grade metamorphosed sedimentary sequence known as Rio Fresco Formation. At the mineralized site red, gray and carbonaceous siltstone overlay dolomitic marble. The orebodies are located at the hinge zone of a recumbent syncline at the contact between carbonaceous siltstone and dolomitic marble. Carbonate dissolution triggered open-space filling processes and developed an external jasperoid zone that envelops the orebodies. Garnet neoblasts, hematite breccias and quartz-carbonate-Cu-sulfide veins are transgressive to foliation and denote epigenetic origin. An epicrustal intrusion-related model is suggested by: (i) mineral assemblages of the marble (quartz, dolomite, chlorite, actinolite, biotite, muscovite, magnetite, and minor calcite, tourmaline, hematite, pyrite, chalcopyrite, molibdenite, galena, digenite and (U-REE)-minerals) that resembles those of actinolite-magnetite skarns; (ii) presence of a hydrothermally altered diorite intrusion that underlines the deposit; and (iii) dominance of brittle tectonics. Supergene alteration was decisive to generate economic Au-Pd-Pt concentrations. Ore mineralogy includes quartz, kaolinite, goethite, Mn-oxides, muscovite and amorphous carbon. Accessory phases include pyrite, chalcopyrite, arsenopyrite, covelite, bornite, galena, millerite, pentlandite, hematite, chlorite, tourmaline, carbonate, atheneite, potarite, native gold, isoferroplatinum, siegenite and carrolite. The orebodies are oxidized, and hypogene mineralization is not known beyond the base of supergene alteration.