

A DESCRIPTIVE MODEL FOR THE IGARAPÉ BAHIA CU-AU HYPOGENE MINERALIZATION, CARAJÁS PROVINCE, BRAZIL.

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The Cu-Au-(U-REE) mineralization is hosted by a low metamorphic grade, Archean volcano-sedimentary sequence. The orebodies define an ellipsoidal structure and are associated to subvertical breccia units, located at the contact between two distinct units of the host sequence. The footwall is dominated by volcanic and volcanoclastic rocks, while the hanging wall includes fine laminated tuffs/epiclastic and sedimentary rocks. Mineralized breccias include fragments of both footwall and hanging wall, which are cemented by variable amounts of chlorite, siderite, magnetite and chalcopyrite. Grunerite, K-feldspar, muscovite and stilpnomelane are restrict to the magnetite rich varieties. Minor amounts of hessite, altaite, (U-REE)-mineral, molibdenite, cobaltite, cassiterite, scheelite, ferberite, fluorite and gold, are constantly present in matrix. Quartz diorite dikes that disrupt the host rocks, show a variety of textures, ranging from weakly altered granophiric terms to highly altered, venulated and/or brecciated rocks. Hydrothermal alteration includes propylitization, potassification and occasionally albitites. Minor phases include ilmenite, magnetite, titanite, barite, ankerite, pyrite, chalcopyrite, galena, sphalerite, molibdenite and (U-REE)-minerals. The stable isotope data ($\delta^{13}\text{C} = -9$ to -6‰ ; $\delta^{18}\text{O} = 1$ to 9‰) indicate a strong magmatic component of the metal-bearing fluids. Additionally, the similarities between the hydrothermal alteration of the mineralized breccia and the diorite dikes, supports a intrusion-related dome structure. Previous stratigraphic and geochronologic data indicate an Archean mineralization age, which is unique for Cu-Au-(U-REE) deposits.