

## **Cu-Au GEOCHEMICAL ASSOCIATION IN THE CARAJÁS REGION: IMPORTANCE IN THE DEVELOPMENT OF SUPERGENE DEPOSITS AND CRITERIOUS FOR EXPLORATION GEOCHEMISTRY IN LATERITIC TERRAINS**

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In the Carajás region (northern Brazil), one of the largest mineral provinces of the world, the main mines and well-known mineral deposits are in some way related to laterites or some kind of supergene enrichment (Fe, Mn, Al, Ni, Cu and Au). Mineral exploration in this region has turned, in the last years, toward Cu and Au deposits, where one have been found a systematic geochemical association among these two elements, both in the primary and supergene context. Meanwhile, Cu-Au geochemical behaviour is completely different throughout the lateritic profile, giving rise to different kinds of supergene deposits. Gold is well-known to be remobilized in the weathering environment and is usually concentrated in the upper ferruginous horizons of the gossan and laterite profiles. Otherwise, Cu tends to be enriched in the lower parts, whose concentrations diminish progressively from the bottom (primary + saprolite zones) to the top of the profiles. Due to intense denudation processes that took place in the region after the establishment of the older (mature) laterites, after Miocene, complete profiles are rare, where Au-bearing lateritic deposits are usually associated to a relict-plateau geomorphological context. Copper deposits are related to lower reliefs but frequently Au can be recovered from the ores as by-product. In Carajás, the better examples of such occurrences are: Igarapé Bahia, Águas Claras, Gameleira, Salobo, Cristalino, Sossego, Alvo 118 (CVRD-Docegeo), among others.