

Metallogenese of Gold Mineralizations in the Borborema Province East Part.

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The gold deposits are located on the secondary Brazilian tectonic lines of the E-W lineaments.

Analysis of the different deposits permitted to highlight characteristics of the mineralizations.

- Three types of deposits can be recognized: quartz veins, mylonitic zones with quartz impregnation and sulphide veins in schist rocks.
- The ultimate remobilization of gold is later than Brazilian intrusions.
- The mineralization is present in all types of lithology.
- Gold, in most of the cases, is associated with iron sulfides.
- The ore shoots present cigar shape in the fault zone but there is a relative constant distance between consecutive deposits in the same fault.
- The initial fluid is always CO₂-H₂O with low salinity.

Understanding as a unique process, the gold mineralizations should be associated with the formation of convection cell circling in the shear zones, caused by the thermal anisotropy created by the Brazilian intrusions. The gold content of the deformed rocks in the lower level of the cell, is dissolved by the CO₂-H₂O-H₂S fluid, and precipitates with sulphides in narrow veins with cigar shape ore shoots. The fluid has, except for H₂S, the same composition than regional metamorphic fluid. Gold precipitation from the thio-complex is caused by decrease of the sulphur activity, consequence of the disposability of iron in the fluid and precipitation of the sulphides. Mass balance analysis shows that iron, with the components of the different sulphides are produced by hydrothermal alteration of the fault walls.

The precipitation of sulphides and gold in thio-complex fashion in solution is caused by decrease of the sulphur activity. The gold precipitation from the thio-complex and sulphides precipitation. The precipitation of sulphides and gold from the thio-complex.