

HYDROTHERMAL ALTERATION GEOCHEMISTRY ASSOCIATED WITH GOLD-SILVER DEPOSIT AT LA JOYA DISTRICT, URURO, BOLIVIA.

¹ALARCON H., ²CHAVEZ. H. ¹Instituto de Investigaciones Geológicas. Facultad de Ingeniería Geológica-UMSA, La Paz, Bolivia. ²Empresa Minera Inti Raymi S.A, La Paz, Bolivia.

A porphyritic high K Miocene Dacite rock hosts an Au-Ag sulfide mineralization associated with a phyllic alteration surrounded by a propylitic alteration. Unaltered rocks have not been found in the District. Major and trace elements have been undertaken on altered igneous rocks in order to know relationship between the evolution fluids and the hydrothermal system; Au-Ag ore related with fine grained dacite with phyllic alteration and the coarse grained dacite around it and represented by other hills.

The Rb vs. Nb+Y plot carried out on propylitic rocks display an I-Type granite-rhyolite related with Au, Ag, Zn, Sn, W, Cu, Mo, as the source of the metallic mineralization. Alteration index based on $K_2O+MgO/K_2O+Mg+CaO+Na_2O*100$ vs. SiO_2 were plotted for phyllic alteration displaying a very good discrimination between the fine-grained dacite with the principal Au-ore deposit and the coarse grained dacite. Metallic elements analyzed have been compared from propylitic and phyllic rocks. The diagram shows an enrichment of Au, Ag, Sb, As, Zn, Pb during the ore deposition on the fine grained dacite while the deeper coarse grained dacite shows low values in Au-Ag, Sb, As with an increasing of Zn, Pb, Cu and Mo anomalies.

The normalized trace elements patterns (REE) display an Eu anomaly in the phyllic alteration associated with the fine grained dacite with high Au-Ag values while the coarse dacite shows a deflection in this element except when the Au values are high.