



Geochemistry and mineralogy in sediments influenced by the gold mining district El Triunfo, Mexico

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The mining district El Triunfo (MD-ET) is located in the Southernmost Baja California Peninsula, Mexico. Approximately 800,000 t of tailings are exposed in open air to seasonal storms and oxidative weathering. The main ore mine are stockwork and disseminated associated to quartz-diorite-tonalite intrusive rocks. The mineralization include mainly Au, Ag, Pb, Zn Cu and As. The aims of this study are to assess the mineralogy and geochemistry of sediments from the MD-ET and its influence in surface sediments of the arroyo "Hondo-Las Gallinas El Carrizal" to reach its discharge at the Pacific Ocean. Texturally, surface sediments have unimodal distribution and are mainly sands. Mineralogy was identified by Spectrometric Dispersive Analysis validated by thin sections and grains counting. On the other hand, geochemistry was realized by ICP-MS and ICP-OES and results were validated with reference materials. Mineralogy Results shows the presence of quartz, augite, epidote, hornblendes, anortite, titanite, sphalerite, arsenolite, and muscovite. Normalized enrichment factors indicate severe enrichment of As, Pb, Zn close to the MD-ET. However in superficial sediments close to the discharge to the Pacific Ocean contents were not enriched.