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Contribution of Spatial Teledetection to the Geological Mapping of the Imiter Buttonhole: Application to the Mineralized Structures of the Principal Corps B3 (CPB3) of the Imiter Mine (Anti-atlas, Morocco)

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Abstract : The world-class Imiter silver deposit is located on the northern flank of the Precambrian Imiter buttonhole. This deposit is formed by epithermal veins hosted in the sandstone-pelite formations of the lower complex and in the basic conglomerates of the upper complex, these veins are controlled by a regional scale fault cluster, oriented N70°E to N90°E. The present work on the contribution of remote sensing on the geological mapping of the Imiter buttonhole and application to the mineralized structures of the Principal Corps B3. Mapping on satellite images is a very important tool in mineral prospecting. It allows the localization of the zones of interest in order to orientate the field missions by helping the localization of the major structures which facilitates the interpretation, the programming and the orientation of the mining works. The predictive map also allows for the correction of field mapping work, especially the direction and dimensions of structures such as dykes, corridors or scrapings. The use of a series of processing such as SAM, PCA, MNF and unsupervised and supervised classification on a Landsat 8 satellite image of the study area allowed us to highlight the main facies of the Imite area. To improve the exploration research, we used another processing that allows to realize a spatial distribution of the alteration mineral indices, and the application of several filters on the different bands to have lineament maps.

Keywords : principal corps B3, teledetection, Landsat 8, Imiter II, silver mineralization, lineaments
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