

Preliminary research on Hyperspectral Mineral Mapping as part of the HYPE4EXPLOR Project

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The research contributed to testing the Mixture Tuned Matched Filtering (MTMF) algorithm for mineral mapping purposes. During the study, we confirmed the effectiveness of the method by validation of selected minerals in the Cuprite Nevada area, using spectral characteristics of minerals from USGS spectral libraries and space-borne hyperspectral imagery (PRISMA). As part of the HYPE4EXPLOR Project, we were tasked with creating surface mineralization maps for the Sierra Gorda mining area, as an exemplary site of Porphyry Copper Deposit (PCD) characteristic mineral alterations (fig. 1). Both preliminary results of MTMF (fig. 2) and additional results of mineral indices were put up for discussion. The next step is to apply spectral characteristics obtained during the planned field measurements which may substantially improve the results of the MTMF mineral mapping.

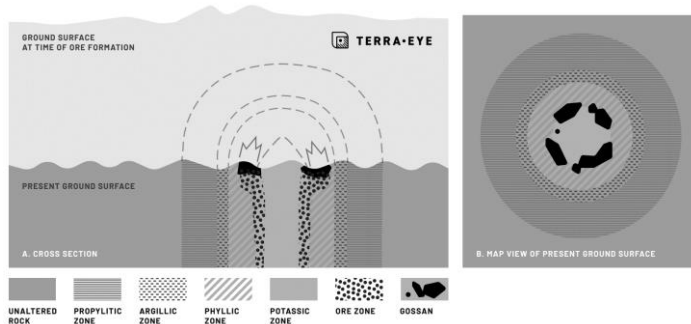


Fig. 1. Geological concept of Porphyry Copper alteration zonation and gossans.

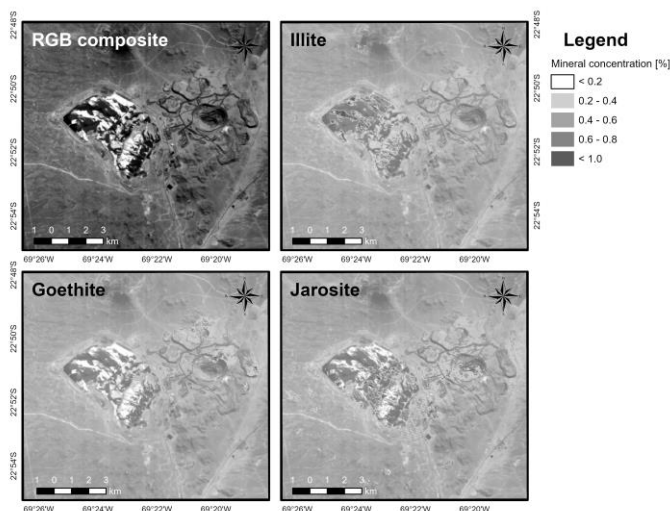


Fig. 2. Preliminary results of mineral mapping using MTMF algorithm for the Sierra Gorda mining area.