

GEOCHEMICAL HIERARCHIAL MODELS OF CU-MO PORPHYRY MINERALIZATION

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The three-level (ore deposit-ore field-ore district) geochemical models are developed for interpretation of data obtained from the regional-scale survey carried out in East Azerbaijan, Iran. Relevant hierarchial features of the lateral and vertical geochemical zoning are established. The model of the Sungun deposit is developed to the greatest detail. Sungun is similar to the Kajaran deposit, Armenia, differing in the prevalence of Cu over Mo in the ore prospected, and a trend in Mo content that increases downwards in Sungun. The Cu/Mo ratio in the Sungun ore decreases downwards from 53 to 22 (cf. 10 in the Kajaran on the average). In the productive part of the stockwork studied, i.e., in the upper and middle levels of the mineralized stockwork (down to the boundary of K-Si metasomatites of the core), Mo-Cu mineralization is accompanied by structurized halos of Ag, Bi, W, Sn, Mn. At the deepest horizons studied, the haloes of Ba and Sr occur, at the upper-ore ones- Co and Ni. The top of the ore horizons and the bottom of the above-ore zone are marked by Pb, Zn, Ga halos, whereas the above-ore zone -by those of Cr, V, Ti, P, Ge, and B. The haloes of As, Sb (Sn) are confined to a sublatitudinal fault in the center of the deposit. In the middle level of the stockwork, removal of all siderophile elements, Mn excluded, is inherent. The models designed present the basis for the selection of parameters used in the assessment of anomalies revealed.