

Application of Electrical Resistivity, Induced Polarization and Statistical Methods in Chichak Iron Deposit Exploration

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Abstract : This paper is devoted to exploration of Chichak (hematite) deposit, using electrical resistivity, chargeability and statistical methods. Chichak hematite deposit is located in Chichak area west Azarbaijan, northwest of Iran. There are some outcrops of hematite bodies in the area. The goal of this study was to identify the depth, thickness and shape of these bodies and to explore other probable hematite bodies. Therefore nine profiles were considered to be surveyed by RS and IP method by utilizing an innovative electrode array so called CRSP (Combined Resistivity Sounding and Profiling). IP and RS sections were completed along each profile. In addition, the RS and IP data were analyzed and relation between these two variables was determined by statistical tools. Finally, hematite bodies were identified in each of the sections. The results showed that hematite bodies have a resistivity lower than 125 Ω m and very low chargeability, lower than 8 mV/V. After geophysical study some points were proposed for drilling, results obtained from drilling confirm the geophysical results.

Keywords : Hematite deposit, Iron exploration, Electrical resistivity, Chargeability, Iran, Chichak, Statistical, CRSP electrodes array

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