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Integrated electrical resistivity tomography and magnetic surveys in a mineralization zone in Erkowit, Red sea state-Sudan

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The present study focus on integrated geophysical surveys carried out in the mineralization zone in Erkowit region, Eastern Sudan to determine the extensions of the potential ore deposits on the topographically high hilly area and under the cover of alluvium along the nearby wadi and to locate other occurrences if any. The magnetic method (MAG) and the electrical resistivity tomography (ERT) were employed for the survey. Eleven traverses were aligned approximately at right angles to the general strike of the rock formations. The disseminated sulfides are located on the alteration shear zone which is composed of granitic and dioritic highly ferruginated rock occupying the southwestern and central parts of the area, this was confirmed using thin and polished sections mineralogical analysis. The magnetic data indicates low magnetic values for wadi sedimentary deposits in its southern part of the area and high anomalies which are suspected as gossans due to magnetite formed during wall rock alteration consequent to mineralization. The significant ERT images define low resistivity zone as traced as sheared zones which may associated with the main loci of ore deposition. The study designates that correlation of magnetic and ERT anomalies with lithology are extremely useful in mineral exploration due to variations in some specific physical properties of rocks.

Biography

Nuha E Mohamed has completed her PhD in 2007 from FPM-Al Neealin University in Sudan cooperated with the TU-Berlin in Germany. She was the Director of the Geophysics Department at the FPM till 2011. She published more than 10 papers in reputed journals and has been serving as an Editorial Board Member of repute. She was prompted to an Associate Professor in 2012 at the FPM.

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