



Integrated Geophysical Prospecting of the Copper-Nickle Ore Deposits at Abu Swayel area, South Eastern Desert, Egypt.

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The Abu Swayel copper-nickle deposits is located at 185 km southeastern of Aswan, near the head of Wadi Haimour, and is located at latitudes 22°47' N and longitude 33°38' E. The area under study have been dissected by three main wades (Haimur, Abu Swayel, and Mereikha) which are tectonically controlled and possessing a direction roughly NE-SW. The ore deposits occur in conformable, lens-like bodies of mafic-ultramafic rocks in Proterozoic meta-sediments. The mineralization and the enclosing rocks have been metamorphosed to mica schist-amphibolite facies. The main objective of current study is to evaluate the area under investigation in term of copper-nickle prospecting. Surface geophysical and geochemistry methods are part of detecting and delineating subsurface geological settings. Shallow geophysical investigations in the form of land magnetic and transient electromagnetic soundings (TEM) were selected and conducted in the Wadi Abu Swayel area to attain the purpose of this study and confirmed by geochemical analysis of (10) rock samples. Qualitative interpretation of magnetic profiles cover the area under study (890 magnetic station) and TEM soundings (53) were very useful to delineate the presence of copper-nickle ore deposits. The integrative using of geophysical and geochemical analyses were found effective for imaging the typical shallow stratigraphic sequence. There are some indications for the presence of copper ore (malachite) accumulations as major and nickle as minor deposits. Structurally the area is Steeply Inclined shear zone 80o trending NW-SE. The thickness of mineralized zone and host rocks dipping from surface till 35.0 m., and confirmed with boreholes information drilled in the study area.