Geophysics

Geophysics is used in mineral exploration to measure variation in the physical properties of subsurface materials without the need for drilling or excavation to recover samples. Such variations can be due to the different chemical compositions of lithologies, the presence of magnetic or conductive minerals, or the degree of water saturation, porosity and faulting below surface. The distribution of these physical properties can be mapped by using airborne and ground-based geophysical surveys, such as magnetic, gravity, electromagnetic (EM), resistivity, induced polarisation (IP), seismic, radiometric and ground penetrating radar (GPR). In conjunction with geological data, geophysical maps and sections are used to generate exploration targets for follow-up geological investigation and drilling.

SRK ES offers:

Experience of completing geophysical investigations to detect mineralisation in banded iron formation (BIF), iron oxide–copper–gold (IOCG), volcanogenic massive sulphide (VMS) and uranium deposits. SRK ES has also conducted surveys to define structure, lithology and geotechnical properties for projects in Mauritania, Kazakhstan, Oman, Cameroon, Sierra Leone and Ethiopia. Interpretation of airborne datasets has complemented numerous projects where regional analysis and target generation is required. Geophysical logging of holes following drilling also provides important data from below ground.

Knowledge of geophysical methods, not all of which are appropriate to all commodities, deposit types or ground conditions. Geophysical surveys are designed by SRK ES with consideration of geology, target mineralisation and the resolution of data required to generate targets.

SRK ES is committed to utilising geophysical data in conjunction with geological knowledge to provide informed, integrated and comprehensive interpretations of mineral deposits. Geophysical surveys will often reveal information about the subsurface which cannot be gained from geological mapping alone, and at a much lower cost than drilling.