Processing and qualitative interpretation of magnetic data in TAK II region and to the north of it, Taknar polymetal ore deposit, Bardaskan (Khorasan Razavi)

Abstract

Taknar polymetal massive sulphide deposit is located at 28 Km to the northwest of Bardaskan (Khorasan Razavi) in a tectonic corridor between two faults, Doroune to the south and Taknar to the north, and among the schistose rock of Taknar formation of probably Ordovician age. This deposit have no pyrohite but high magnetite. Magnetic survey is ideal for exploration and prospecting of new reserve in this ore deposit. The aim of this study is to use ground magnetic survey in Tak II region and outside of it (northern part) for exploration of new reserve. Total Magnetic Intensity (TMI) was measured at 311 points in a grid of 30×10 and 20×10 in Tak2-1 (above Tak II ore body tunnel) and Tak2-2 (north of Tak II) region respectively. Magnetic susceptibility measurement were also carried out over rock outcrops along the magnetic survey traverses. After necessary corrections, this magnetic data was processed using ERMaper software to prepare the TMI, Relation to the pole (RTP), First vertical derivative and Upward continued maps. The result of qualitative interpretation of magnetic data indicates the presence of two large magnetic anomalies in both Tak2-1 and Tak2-2 area. Tak2-2 anomalies are similar to Tak2-1 anomalies which are located above ore body and separated from it by faulting. The trend of the anomalies are northeast-southwest and the causative sources of them are magnetite along with mineralization. The position of the anomalies is proposed as suitable points for drilling.