



Using inversion of magnetic data to image subsurface features in Markazi province, Iran

M.A. Karimi (1) and B. Oskooi (2)

(1) (saman1304@gmail.com), (2) boskooi@ut.ac.ir

Magnetic method is very important method in geophysical studies. We know, when there is discontinuity beneath the earth surface, magnetic data shows anomaly (Telford 1974).

In this paper we present a case study with many profiles cross to a fault in Arak, Markazi Province, Iran. We measured the total magnetic field of the earth by using of the proton magnetometer along each profile. These magnetic data shows anomaly over an area which is a fault zone.

We used of an automatic inversion scheme and computer program in FORTRAN to invert magnetic anomalies, designed by RadhaKrishna Murthy (2001).

This scheme finds the initial value of the fault model itself and by using of Marquardt-Levenberg optimization technique, iteratively improves them until the best answer is achieved.

Finally different parameters of the fault model are obtained such as the depth to the top and bottom of the fault, distance from a fault zone to a reference point and direction of magnetization. During all process the geological setting of the area must be considered.

Different geophysical studies such as MT (magneto telluric) and Gravity have performed in this area before and with comparison between them and this study we can find good correlation in relocating the fault zone and determining different parameters.

According to the obtained results magnetic studies can be so useful and play important role in such geophysical studies.