

# **Imaging and inversion of potential field data, a case study for exploring Iron-bearing zones in Golgohar, Iran**

Behrooz Oskooi<sup>1</sup>, Pardis Mansourshoar<sup>1</sup>, Maysam Abedi<sup>2</sup>

<sup>1</sup>Institute of Geophysics, University of Tehran, Iran

<sup>2</sup>School of Mining Engineering, College of Engineering, University of Tehran, Iran

## **Abstract**

Imaging and inversion of potential field data give us an estimation of the source property distribution and it is a powerful tool which yields a fast 3D representation of the source distribution. The execution time of these approaches is substantially different. Imaging methods are characterized by fast computation, simplicity and the results are quantities proportional, but not the real physical properties, on the other hand, the inverse modeling can always determine the real physical parameters distribution but it is computationally expensive.

In this work we want utilize both approaches of the inversion and the Depth from Extreme Points (DEXP) of magnetic data for the Golgohar Iron mine located in the Sanandaj-Sirjan zone in the province of Kerman of Iran. First both approaches are compared for three synthetic scenarios corrupted by 3% of Gaussian noise; which are a single source, a single sloping source and a multi source of magnetic anomaly. This is needed for the investigation on its reliability for the practical application on the real data. Reconstructed models from synthetic data are in close association with the sought geometry. Ultimately, the approaches are applied for the interpretation of the real data and the results shows a high correlation between imaging and inversion in terms of the magnetic anomaly positions, horizontally and vertically.

**Keywords:** DEXP, Potential field data, Imaging, Inversion, Golgohar Iron mine.