

## Corrections for near surface effects contaminating MT data over a salt diapir, North West Kashan, Iran

E. Zare<sup>1</sup>,  
M. Montahaei<sup>2</sup>,  
H. Esmaili Oghaz<sup>3</sup>

<sup>1</sup>Institute of geophysics, University of Tehran, Tehran, Iran, [elham.zare.99@ut.ac.ir](mailto:elham.zare.99@ut.ac.ir)

<sup>2</sup>Institute of geophysics, University of Tehran, Tehran, Iran, [mmontaha@ut.ac.ir](mailto:mmontaha@ut.ac.ir)

<sup>3</sup>Natural Iranian Gas Storage Company for Nasr-Abad Area, Tehran, Iran

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### SUMMARY

In this study, we investigate an MT data set recorded over buried Nasr Abad salt diapir, in Qom Basin, west Central Iran. Central Iran (CI), Zagros folded belt (ZFB), Sanandaj-Sirjan zone (SSZ), Alborz Mountain Range, Kope- Dagh mountains, Makran and Sistan-Baluchestan are seven tectonic blocks, originated from Arabian-Eurasian collision which constitute the Iran plateau. Many majestic salt extrusions (diapirs, glaciers (Nmakiers)) in ZFB, Saveh-Qom area and Grate Kavir desert in Central Iran provide a natural laboratory to test different dynamic models of salt flow.

Due to its large dimension, Nasr Abad salt diapir has been selected as an ideal site for gas storage and industrial waste disposal.

A challenging task arises from small scale conductive bodies distributed at surficial depths which generate distortion effects contaminating measured MT transfer function. We present here a systematic study of dimensionality analysis and decomposition of an MT data set, recorded at 25 stations along a profile in North West Kashan, Qom basin, Iran.

The Bahr and WAL invariants confirm regional 1D and 2D structures with local galvanic distortion, at most periods. Based on the phase tensor ellipses, we argue that most of the MT data represent regional 1-D and 2-D structures with local galvanic distortions. The Groom Baily decomposition of MT impedance tensors data reveals approximately period-independent distortion parameters and a set of smoothly varying regional strike directions. 2-D inductive effects were also retrieved by removing distortion effects from the measured data.

**Keywords:** magnetotellurics, electrical conductivity, salt dipir, Central Iran

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