



## **Integrated interpretation of geophysical data from Zagros mountain belt (Iran)**

Mansoureh Montahaei (1), Pilar Queralt (2), Juanjo Ledo (2), Behrooz Oskooi (1), Josep A. Muñoz (2), and Alex Marcuello (2)

(1) Institute of Geophysics, University of Tehran, Iran, (2) Universitat de Barcelona, Barcelona, Spain

Zagros mountain belt, characterized as a rather young continent-continent collision zone (formed around 10 Ma due to the closure of Neotethys Ocean) is considered as a geodynamically interesting area to study the dynamic of mountain ranges. We present an integrated interpretation of a new 2D magnetotelluric (MT) model along a profile (traversing the main trend of the Zagros trend) combined with other geophysical data to enlighten the main open geodynamic questions in the Arabia–Eurasia collision zone in Iran.

The MT model image the Eurasian Plate more resistive than the Arabian Plate setting the sharp transition beneath the Main Zagros Thrust (MZT) considered by many authors as being the suture between the Arabian and Eurasian plates.

The earthquake distribution's is concentrated on the Zagros Folded Thrust Belt (ZFTB) (Arabian crust), at a depth of 8–15 km in the upper crystalline crust beneath the sedimentary sequence, with a high correlation with the distribution of the main faults, where MT model imaged conductive zones. A precise delineation of these conductors to infer the projection of the faults in depth could be very significant to determine the position of the main detachment level of this domain.

The new 2D resistivity model is obtained after reassessing a previous data set (Oskooi et al. 2013) and considering their sensitivity analysis (Layegh et al. 2018). Moreover, some sites are reprocessed, and a revision of the GB decomposition and static shift corrections is made. The new model includes topography and sea.

Layegh, T., Montahaei, M and Oskooi, B. (2018) MT data inversion and sensitivity analysis to image electrical structure of Zagros collision zone. *Journal of Applied Geophysics*. 148, 23-32

Oskooi, B., Pedersen, L. B. and Koyi H. A. (2013) Magnetotelluric signature for the Zagros collision. *Geophys. J. Int.* 196, 1299–1310