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# Lithospheric structure of Central Hoggar (Southern Algeria, Northwestern Africa) obtained by magnetotelluric data

Abderrezak Bouzid (1), Sofiane Saïd Bougchiche (1), Abdelhamid Bendekken (2), Boualem Bayou (1), Seid Bourouis (1), Abdeslam Abtout (1), and Walid Boukhlouf (1)

(1) CRAAG, Division Géophysique de Subsurface, Algiers, Algeria (a.bouzid@craag.dz, +21321904458), (2) CRAAG, Observatoire de Tamanrasset, Tamanrasset, Algeria

The objective of this work is to model the lithospheric structure of the Hoggar massif at Atakor region using broadband magnetotelluric data collected at 18 sites including 13 new ones performed in April 2012. The data analysis shows that deep geologic structure under the study area is roughly 2-D and having a N15°W elongation. This direction is supported by both the induction vectors and the surface geology. Indeed, the faults affecting Azrou n'Fad and Egere-Aleksod terranes as well as shear zones limiting theme are of NNW-SSE direction. The electric model obtained by inversion of magnetotelluric data has a good correlation with the geology and reveals a rather heterogeneous crust showing many conductive anomalous zones that may be related to faults affecting the various terranes constituting the LATEA. It shows no regional anomaly that may result from metasomatized lithosphere or an asthenospheric upwelling to at least 100 km depth, but reveals a rather lithosphere affected by a whole set of thin subvertical conductors that represent the electrical signature of faults and shear zones. Magnetotelluric data are therefore more consistent with the hypothesis of the reactivation of shear zones due to the remote collision from the Eocene of the African and Eurasian plates.
Key words: Hoggar, Lithosphere, Magnetotellurics