



Electrical signature of Central/western Hoggar fossil suture zone (Southern Algeria)

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During the Neoproterozoic/Panafrikan orogeny, Paleoproterozoic rocks of the Touareg shield forming part of western Gondwana have been widely involved in several geodynamic processes. Indeed, the Algerian part is known as three entities, eastern, western and central Hoggar separated by great fossil suture zones. In addition to that, the central/western Hoggar boundary is represented by one of the greatest west Gondwana shear zones, known as $4^{\circ}50'$ in Algeria, Kandi fault in Nigeria and Transbrasiliano (TBL) lineament in Brasilia.

In order to image the underlying structures of central/western Hoggar, 51 broadband Magnetotellurics stations have been used for a 2-D and 3-D inversions. Both inversions attest a very resistive shallow crust ($> 10\,000$ Ohm) for a 10-15 km depth with less resistive to conductor lower crust. The underlying lithospheric mantle of both central and western Hoggar shows obviously a lateral resistivity contrast variation on both sides of the $4^{\circ}50'$ and $4^{\circ}10'$ shear zones. These two mega conductive shear zones (~ 50 Ohm) seem to be connected around 70 km depth, by delimiting the two underlying lithospheric mantles. During this event, the geodynamical processes will be discussed by highlighting some resistivity models.

keywords: $4^{\circ}50'$, $4^{\circ}10'$, lithospheric mantle, shear zones, Hoggar, Gondwana, Magnetotellurics.