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Geophysics Contribution for the Determination of Aquifers with a Case Study

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ABSTRACT

The determination and monitoring of aquifer formations on the eastern border of Moroccan Gharb basin are very difficult because of their spatial and temporal variation. To delimit these formations, a geophysical survey of 52 geoelectric soundings was performed with a mesh of 500 m and electrodes distance between 1000 m and 3000 m. Geoelectric sections and resistivity maps show a horst and graben structure. The correlation of existing oil drillings shows that the Jurassic and Neogene formations are both affected by normal faults causing Jurassic deposits collapse with local thickening of the Miocene deposits, and reverse faults delimiting tectonic slices due to tension caused by prerifaine nappe advance. This fact confirms the generated structure by the resistivity method. The isobath map of resistant formations's roof show average depths extending from 400 to 800 m for calcareous sandstone that are potential aquifers while oil drillings indicate over 1000 m depths.

KEYWORDS

Aquifer; Prerifaine Nappe; Resistivity Method; Geophysical Survey; Gharb Basin

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