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HYDRO-GEOELECTRICAL STUDY IN THE NORTHEASTERN PART OF ADAMAWA STATE, NIGERIA

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ABSTRACT

Nineteen vertical electrical soundings (VES) with a maximum current electrode separation of (AB/2) 215 meters were carried out in the northeastern part of the Michika area of Adamawa State, Nigeria. Eighty-five percent of the VES indicate a three-layer earth model, while the remaining fifteen percent indicate a four-layer earth model. The first layer represents the topsoil and has a mean resistivity value of 166 ohm-m and a mean thickness of 2.2 meters. The second has a mean resistivity of 61 ohm-m and a mean thickness of 26.9 meters. This layer represents a highly weathered/fractured basement. The third layer has mean resistivity of 881 ohm-m and a mean thickness of 24.3 meters. This layer represents the weathered/fractured basement. Four layers were obtained in three vertical electrical soundings, and only VES6 with a resistivity value of 4170 ohm-m has reached the fresh basement rocks in the study area. Ten boreholes of a mean depth of 39 meters were drilled after the geoelectrical survey. A hydraulic conductivity value of 0.36 m/day and transmissivity value of 1.97 m²/day were obtained from data collected from the boreholes in the study area.

Reference: Nur, A., and A.S. Kujir. 2006. Hydro-geoelectrical study in the northeastern part of Adamawa State, Nigeria. *Journal of Environmental Hydrology*, Vol. 14, Paper 19.

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