

**GEOELECTRIC EVALUATION OF GROUNDWATER
POTENTIALS OF FACULTY OF SCIENCE AND ITS
ENVIRONS, FEDERAL UNIVERSITY OYE- EKITI PHASE
TWO, SOUTH WESTERN NIGERIA.**

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ABSTRACT

A Geophysical integrated research work involving the use of Electrical Resistivity (ER) and the Very Low Frequency Electromagnetic methods (VLF-EM) were carried out for groundwater potential on the Precambrian basement complex terrain of Federal University Oye-Ekiti Phase two (2), Ekiti-State Southwestern Nigeria. Five traverses running from East to West were established in the study area. The length ranges from 110m to 160m. Five VLF-EM measurements were acquired, while a total of twenty Vertical electrical sounding (VES) stations were occupied within the study area. The VLF- EM responses were interpreted using the Karous Hjelt (KH) package and inverted into its 2D Pseudo section. On the basis of these VLF-EM responses, series of conductors were identified (C1 – C6). The six (6) major conductive zones are suspected to be fractures. The VES data were quantitatively interpreted using the partial curve matching technique and 1-D forward modeling with WinResist 1.0 version software. The VES result also delineated four major Geo-electric layers within the study area. The topsoil, weathered basement, partly weathered/ fractured basement and fresh basement. The top soil (resistivity varies from 28 to 175 ohm-m and thickness ranges from 0.3 to 3.7 m); weathered basement (resistivity varies from 22 to 498 ohm-m and thickness ranges from 1.3 to 38.7 m), Partly weathered/fractured basement (resistivity varies from 381 ohm-m to 775 ohm-m and thickness ranges from 8.5m to infinity) and bedrock with resistivity 809 to 6693 ohm-m and depth to bedrock 1.5 to 43 m). The interpreted data revealed A-curve type as the dominant curve type in the study area. It has 55% dominance. Other curve types include the KH (10%), HKH (5%), AA (5%), H (5%), K (5%), AKH (10%) and HA (5%).