

COMPARING THE RESOLUTION AND SENSITIVITY OF MULTIELECTRODE HYDROGEOPHYSICAL CONFIGURATIONS USING 2D RESISTIVITY TOMOGRAPHY: A CASE STUDY AT NSAKYE IN THE EASTERN REGION OF GHANA

Geophysical method of exploration involving 2D Electrical Resistivity Tomography was employed to compare the resolution and sensitivity of different electrode configurations in order to delineate potential drill point for groundwater at Nsakyé. The 2D Electrical resistivity tomography (ERT) using the Dipole-dipole, Wenner, Schlumberger electrode array configurations was deployed along traverses within the area. The work carried out comprises desktop study, field reconnaissance survey and geophysical investigations. The 2D Electrical Resistivity Tomography technique was used for the studies to determine the lateral and vertical variations of rock resistivity with depth. The results of the geophysical investigations indicated that the study area is generally underlain by three geological strata with varying apparent resistivity values. The bedrock is fractured to facilitate groundwater development with expected satisfactory borehole yield. The results of the study confirm that the optimal electrode configuration for geophysical investigation at Nsakyé is the Dipole-dipole array and 2D ERT method is also very suitable for sitting boreholes in Nsakyé which is underlain by Voltain supergroup. It is suggested that, Geophysical methods should hence, form an integral part of groundwater exploration programmes in solving problems associated with groundwater prospecting to locate potential aquifers for the supply of potable water to rural communities.

Authors: Prof. SAM, Frederick (UNIVERSITY OF CAPE COAST); ODURO, JONATHAN (UNIVERSITY OF CAPE COAST); Mr KWADWO OSEI, Jones (UNIVERSITY OF CAPE COAST)

Presenter: ODURO, JONATHAN (UNIVERSITY OF CAPE COAST)