

D. U. Alhassan, D. N. Obiora, F. N. Okeke, J. U. Ibuot (2018) Investigation of groundwater potential of southern Paiko, northcentral Nigeria, using seismic refraction method

Abstract

Groundwater potential of southern Paiko area, northcentral Nigeria, was investigated by employing seismic refraction survey method. The seismic field data were collected using 12-channel seistronix. The profiles were marked at intervals of 100 m and the profile lines traversed 1000 m. Total of 44 spreads were shot. Velocities of underlying layers were obtained from the plotted Time-distance (T-S) graphs and the depths to the refractor layers were computed. An overview of the lateral variation in the lithological changes of the subsurface earth materials in the area was observed. The depth of the overburden thickness (basement surface) varies from 10.05 to 18.17 m. The overburden velocities ranged between 796 and 3451 m/s and the consolidated layer velocities varied between 3065 and 9282 m/s. Seven shot points were delineated as aquifer potentials of the area having overburden thickness varying between 13.13 and 18.17 m with overburden velocities ranging from 881 to 2952 m/s.

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Keywords Groundwater potential, Seismic refraction survey, Seistronix, Time-distance graph, Basement surface, Paiko