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Correction

Article title: Empirical Relationship between Electrical Resistivity and Geotechnical Parameters: A Case Study of Federal University of Technology Campus, Akure SW, Nigeria
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When the article was first published online, the abstract and keywords were missed to be included. The same has been provided below.

ABSTRACT

Electrical resistivity measurement and geotechnical tests were carried out at some locations within The Federal University of Technology, Akure Campus with the aim of establishing an empirical relationship between the two parameters. Ten locations were selected across the geological distribution of the area. Electrical resistivity measurements were carried out at each of the locations by adopting a current electrode separation corresponding to the depth of interest (1 and 2 m). The geotechnical analyses were carried out on twenty (20) subsoil samples taken at the depth of 1 and 2 m at each of the sounding locations. The apparent resistivity values obtained were correlated with the analyzed geotechnical parameters at the depth of 1 and 2 m, and empirical equations relating the two parameters were established. The cross plots show that, the two parameters correlate with the composition of the weathering end-product of the geology within the study area. The cross correlation at the depth of 1 and 2 m show that Specific Gravity (SG), Maximum Dry Density (MDD) and California Bearing Ratio (CBR) exhibit a direct relationship with apparent resistivity (ρ_a) while Moisture Content, Clay and Silt Content, Liquid Limit (LL), Plastic Limit (PL), Plasticity Index (PI), Linear Shrinkage (LS), Optimum Moisture Content (OMC) and Unconfined Compression Shear (UCS) strength exhibit an inverse relationship. The cross plots at both depths generally give a good correlation with coefficient of correlation (R) generally greater than 0.50. The fact that almost all the geotechnical parameters gave a relatively good coefficient of correlation with apparent resistivity implies that reliable engineering geotechnical parameters can be estimated from electrical resistivity measurements using the established empirical equations for each of the parameters.

Key Words

Resistivity, Empirical relationship, Geotechnical parameter, Schlumberger configuration, Coefficient of correlation, Shear strength.