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Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2014_BJAST_14541
Title of the Manuscript:	Estimating Geohydraulic Parameters With Geoelectric Soundings: Case Study From Orerokpe, Western Niger Delta, Nigeria
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	<p>This paper discusses a topic of interest for the scientific community; in particular, for the applied geophysics and water resource communities. I also think the paper is in the scope of the SDI journal. Having said that, the paper needs improvements in almost every aspect, especially in those that deal with the context of the problem and literature review, materials and methods, and conclusions. The quality of the maps and figures are really poor. There are several problems related to the English language. So, in order to be published, the paper must undergo a detailed review. Below, I present several suggestions to improve the paper using the paper sequence of topics.</p> <p>1) INTRODUCTION</p> <p>Improve the description of the problem context; Use complete references (as opposed to numbers); Include new references on the same topic and related topics, as well as references about research that integrate geoelectric surveys and hydrogeological parameters; Insert text and location map of the study area; The quality of the map in Figure 1 is low and the</p>	<p>References [6, 7, 8, 9, 11] have been added as new references about research that integrated geoelectric surveys and hydrogeological parameters in lines 47, 50 and 52.</p> <p>The quality of the map has been improved.</p>



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	<p>map does not contain elements that facilitate identification; The terms "conductivity" and "transmissivity" must be added to the word "hydraulic" when associated with hydrogeological parameters, since electrical conductivity is also part of the context.</p> <p>2) GEOLOGICAL AND HYDROGEOLOGICAL CONTEXT Create the topic "Geological and Hydrogeological Context" before Materials and Methods; The authors should detail the regional geology, including structural context (which may cause rapid changes in thickness of the aquifer and positioning of specific layers); Detail the hydrogeology of the area (hydrostratigraphy and regional hydraulic characteristics) as well; report on the type of hydraulic aquifer (unconfined, confined, ...); include a picture with a profile of a representative well of the local aquifer system.</p> <p>3) MATERIALS AND METHODS Do not use subtopics; Improves the picture that illustrates VES location, location identification information from available wells, access roads, among others; Present calibration geoelectric (VES performed next to a well with a well established hydrogeological profile, e.g.) both in the text and in the picture, which should endorse the other geoelectric results, including the fact that maximum electrodes openings of 450m can</p>	<p>Geology and hydrogeology section have been created before Materials and Methods in line 62. Details of the hydrogeology have been discussed in lines 82 – 95.</p> <p>The interpreted vertical electrical sounding (VES) data have been correlated with a lithologic log as shown in figure 4</p>
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	<p>indeed be used to investigate depths of about 70m (substrate / conductive layers ?!); It is important to note and briefly discuss that "acceptable errors" in the interpretation of geoelectrical data may be higher, since the inversion models incorporate a broader set of local hydrogeophysical features; the error is primarily associated with the fitting of field data and curve generated by the inverse model, which hardly contemplates local hydrogeophysical characteristics;</p> <p>Include references of the methods for interpretation of aquifer tests (e.g. line 120); Is it really the case that only four hours of pumping was sufficient for stabilizing the level of the observation well during the pumping test? If not, the presented data are not representative;</p> <p>The text should make clear that the "T" and "K" data from the aquifer test are presented as a reference for estimating the same parameters from geoelectric data somewhere else in the text;</p> <p>The equation in line 147 refers to hydraulic conductivity;</p> <p>The values of hydraulic parameters obtained in this section should be presented on the topic of "results and discussion".</p> <p>4) RESULTS AND DISCUSSION</p> <p>This topic should include the presentation of all performed VES, as well as their corresponding inverse models (I suggest the inclusion of figures related to the set of similar</p>	<p>The term "acceptable errors" have been removed.</p> <p>Computer iteration techniques and RMS errors have been explained in lines 131 – 135.</p> <p>The references of the method of interpretation have been included in lines 103 and 106.</p> <p>Six (6) hours i.e 300 minutes was used and not four (4) hours. This error have been corrected</p> <p>The equation in line 147 is now in line 209. The T in the equation have been changed to K. Values of K obtained have been presented in results and discussion (lines 211 and 213)</p> <p>Similar figures has been included (figures 2 and 3).</p>
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	<p>curves); Include references for the types of curves in line 152 on the topic of "Materials and Methods", as they already represent a preliminary qualitative interpretation; Figure 4 needs to be located on the map (Figure 1 ?!), indicative of water table, saturated thickness and other hydrogeophysical and geological data (?! presence of faults), allowing its redefinition to hydrogeophysics section. The caption should be divided into geological, hydrogeological and geoelectrical features. Geological and geoelectric layers are formed only by sediments or rocks also (medium sand or sandstone?)?! This information must be supported with geoelectric calibration, which must be presented at the beginning of this topic; Values of resistivity of about 4500 ohm.m are usually not compatible with saturated sandstones (unsaturated zone, hydrogeological basement ?!); specify the interpolation method and gridding of data that originated figures 5, 6 and 7; present caption, improve geographic coordinates, geographic north, etc .; Are the values of "T" and "K" in Table 1 only from geoelectric models ?! Specify the difference between the two values of "K" presented; Check errors in the text and tables of units for "T" (m²/day) e "K" (m/day), e.g., in line 195;</p>	<p>A reference [3] has been included in line 173.</p> <p>The traverse from which figure 4 was drawn from has been located on the map as line AB in figure 1</p> <p>The VES data for this location was reinterpreted (See figure 2).</p> <p>SURFER (2002) terrain and surface modelling software was used to generate these figures. Transmissivity and hydraulic conductivity values from geoelectric models are now represented by T_c and K_c respectively while that from aquifer test remain as T and K</p>
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	Emphasize that the classification of values "T" used in Table 2 is only a specific proposal for the area. 5) CONCLUSION - see reported observations. Taking into account all comments I made, particularly the need for a thorough review of overall aspects, quality figures and deepening of all topics.	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		