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Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	Ms_BJAST_31138
Title of the Manuscript:	SEDIMENTARY PROCESSES AND DEPOSITIONAL ENVIRONMENTS OF PART OF THE BENIN FORMATION IN THE CALABAR FLANK, SOUTHEASTERN NIGERIA
Type of the Article	Original Research Paper

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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)
Compulsory REVISION comments	ABSTRACT This research work entail the study of the sedimentological processes and depositional environment from two major exposed sections of the Benin Formation in the vicinity of the southern fringes of the Calabar Flank. Stratigraphic logs were produced and 20 samples collected were subjected to sedimentological analysis including sieve analysis. Sedimentary structures were measured and analysed for paleocurrent patterns. The results from the textural analyses show that the sediments were predominantly medium to coarse grain (ϕ -0.13 – 1.63), moderately to poorly sorted (ϕ 1.02 – 2.03). Skewness and kurtosis ranges from coarse skewed (ϕ -0.66 – 0.13) and leptokurtic to platykurtic (ϕ 0.72 – 2.00) respectively. Bivariate analysis reveal that 100% of the samples are fluvial on origin with predominant deposition within rolling and saltation sub-population were used (This statement is not clear). The point was restricted to the P-Q section of the C-M plot signifying deposition high energy deposition. Lenticular beds characterized tidal influence in a thick mudflat deposit. (This statement is contradictory to the initial findings that you made, that, 100% of the samples are fluvial in origin. Lenticular beds suggests tidal influence which is marine, not fluvial) Break in sedimentation was identified by the presence of a paleosol and the unimodal and unidirectional pattern of the paleocurrent markers suggest fluvial setting. NOTE: You studied a section of the Benin Formation which is wholly fluvial. Your findings should be 100% fluvial processes and fluvial products (deposits). Your	This research work involves the study of the sedimentological processes and depositional environment from two major exposed sections of the Benin Formation in the vicinity of the southern fringes of the Calabar Flank. The comments of the reviewer is ok on this issue, because the 20 samples selected for sieve analysis was not clearly specified. The authors have specifically stated that the sandstones were used for sieve analysis and they point to fluvial process. Also, for the characterization of sub-populations, the authors used the Passega, 1957 C-M plot to distinguish rolling (traction) and saltation as predominant depositional processes for the sandstones. This can also be achieved with the log probability plots of Visher 1969, but the choice here was passega's C-M plot. The lenticular beds were studied in the mud facies and not the sandstones. This has also been properly highlighted in the main text. The reviewer has so far seen deposits of the Benin Formation that are wholly fluvial and that is ok. However, in the light of new exposures and



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	work will require re-interpretation. Perhaps the outcrops you studied may have cut across other formations other than the Benin Formation. So, look at the stratigraphy of the area again and do your interpretation. Introduction Your Figure 1 is a location map. It is not a map showing and exposed outcrop section as stated. Methodology: Figures 3 and 4 should be part of your results except it is not part of your work, then you have to reference the authors. The shale in fig. 3 and 4 are they marine or continental(fluvial) shales. Results and Discussion 1. In paragraph 2 line 3, the statement “Such high energy is common to sands deposited within most coastal (barrier-bar, beaches and braided streams during torrential floods).” Note that braided stream cannot be a	proper lithologic description certain sections, as this studied here has shown to include transitional settings. It is worthwhile to report what is seen and not just forcefully fit ones result with existing models. Based on the findings of this work, further studies in sedimentary geochemistry as well as palynology is underway, to constrain the limits of the depositional environment and make clear the findings. It is important to say here that I do not completely agree with the reviewer that the Benin Formation is entirely (100%) fluvial. For the logged section, it was a good distance from the boundary of the Nkporo Shale that underlies the Benin Formation. So far, there has not been any separate Formation in between in the geological lexicon within this area that fits into the sedimentological description of these studied sediments. Introduction I agree with the reviewer. I have made adjustment to the description of Fig 1. I have relocated the figs. 3 and 4 to the results and discussion section of this manuscript because they are wholly prepared by the authors. The shales are of tidal flat setting (Transitional environment). The lenticular beds are indication of a tide dominated environment. Results and Discussion The environments have been distinguished.
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	subenvironment within the coastal environment. The coast falls within the marginal marine whereas braided stream is entirely a terrestrial environment. So, putting braided stream in bracket against coastal environment does not give a straight interpretation. 2. The effectiveness of the transporting medium may not have been large enough the properly sort the sediments during its transportation. Replace the highlighted the with to. 4.2 Sedimentary Structures and Paleocurrent Analysis 131 The sedimentary structures observed in the study area include lenticular bedding pattern, skolithos 132 traces and paleosols upon which asymmetrical ripple marks and planar cross beds were observed, 133 these were analysed were used for interpretation of paleocurrent. The statement in line 133 is not clear. The interpretation of the sedimentary structures in this section contradicts your topic and the results presented in table 1 which focuses on continental environments (fluvial depositional system). Note that the Benin Formation is purely a continental environment. Subenvironments present within such fluvial system include: channels and overbank deposits and note that there are no fossils or organic sedimentary structures within the fluvial system. So, look at the structures you are seeing in the rock, and trace fossil types to interpret the right depositional environment. Skolithos ichnofossils cannot be found in the Benin Formation. In line 155, shallow water environment cannot be fluvial environment. Reinterpret this section.	Thank you, the 'the' as earlier used has been replaced with 'to'. It was a typographical error. 4.2 Sedimentary Structures and Paleocurrent Analysis 131 The sedimentary structures observed in the study area include lenticular bedding pattern, skolithos 132 traces and paleosols upon which asymmetrical ripple marks and planar cross beds were observed, 133 these were analysed and used for interpretation of paleocurrent. There was also a typographical error here and it has been corrected.
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<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments	The entire work will require re-interpretation. The results contradict the topic which borders on fluvial processes and environment. There are elements of marine processes in the interpretation which is contradictory. The processes and specific fluvial sedimentary environments (beside channel and braid) are not discussed in the work.	Many thanks for the comments which have largely improved on the final outlook and content of this paper. Should there be any more question or opinions, we would be available to discuss them.