**Climate
of the Past**

Discussions

Interactive comment on "A paleoenvironmental reconstruction of the last 15 000 cal yr BP via Yellow Sea sediments using biomarkers and isotopic composition of organic matter" *by* A. O. Badejo et al.

Anonymous Referee #1

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Badejo and co-authors present an interesting data set of biomarker (n-alkane and alkenone) concentrations and carbon isotopic compound specific compositions in a sedimentary record collected in the Yellow Sea. Through the variations of different ratios, they investigate paleo-environment and -vegetation during the last 15,000 years. Although the dataset is of interest for the paleoclimatic community and the paper addresses relevant scientific questions within the scope of CP, the manuscript needs to be seriously reworked and reorganized in order to reach substantial conclusions and the English proof-checked. The outline of the discussion part of the manuscript is unclear

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(4. Results and discussion; 5. Alkenone abundance; 6. Monsoon variability, 7. Conclusions). Why not starting with a simple description of the results and then distinguishing the different lines of the discussions? Specific comments are following.

Specific comments. Title: the title does not fully reflect the content of the paper, i.e. the "paleo-environmental reconstruction" is not obvious from the conclusions and the abstract for example? L1-20. Abstract: the abstract needs to be reworked to better reflect the content of the manuscript and it should be reorganized as well. As it stands, it is a catalog of proxies. L2 p1528. I would not state that glacial climate could be reconstructed in this sedimentary sequence given that the oldest samples date back to 15 kyrs. L21 p1528. The introduction part needs to be reorganized. It misses a presentation of the global implications of the questions addressed in the paper in order to capture a broad audience. Then the study area could be presented but only after a description of its interest into the global questioning. At last the outline of the paper could be developed. L3 p 1531. Be careful "The age model for five selected depths" needs to be corrected by the "Radiocarbon ages for five . . .". The language needs to be proof checked : "CalibrationS were . . .", "The age-depth model was constructed. . .. L24 p 1532. "using the known ion chromatograms" unclear L1 p 1533. "The alkenone unsaturation . . .. were calculated. . ." L20 p 1533. Results and discussion - The entire manuscript starting to this point needs to be reorganized (see above). L20 p 1534. "The Yellow Sea was exposed sub aerially . . ." is this a conclusion of the dataset produced or does it come from previous studies? The link between data and conclusion is weak. L23 p 1534. C/N values, the number of digits needs to be checked. P 1535. Unclear L27 p1535. "High TOC values were most likely caused by a reduction of marine productivity. . .." Unclear L7 p 1536. "Pristane and Phytane ARE. . .", Pr/Ph ratiO.. L24 p1536. "the corroboration of parallel laminated. . ." - meaning? L7 p 1537. Fresh instead of young?

Comments on the figures: Table 2. The legend does not correspond to the content of the table: it states "Individual carbon isotopic compositions of n-alkanes and bulk or-

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ganic carbon isotopes" and the table contains the bulk organic carbon (%). Individual carbon isotopeS of individual n-alkaneS Could the SD on the d13C be added in the legend? Figure 3. Best cHronological model Figure 4. Chromatograms of THE hydrocarbon (n-alkanes) and alkenone FRACTIONS in A sediment sample (90-92 cm). Figure 5. Age instead of Downward Figure 6. The legend needs to be rewritten. Figure 7. Define all the terms indicated on the figure: ACL for example. Why are the concentrations relative?