

Biogeosciences Discuss., referee comment RC2
<https://doi.org/10.5194/bg-2021-309-RC2>, 2021
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Comment on bg-2021-309

Anonymous Referee #2

Referee comment on "Performance of temperature and productivity proxies based on long-chain alkane-1, mid-chain diols at test: a 5-year sediment trap record from the Mauritanian upwelling" by Gerard J. M. Versteegh et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-309-RC2>, 2021

This manuscript entitled : "Performance of long-chain mid-chain diol based temperature and productivity proxies at test: a five-years sediment trap record from the Mauritanian upwelling" presents a really interesting and impressive dataset with the aim of investigating the main diol indexes.

Overall the manuscript is well-written and engaging and the authors present valuable data and solid discussion .

However, there are a few areas where further detail would be beneficial to the reader. The authors will find hereafter a few suggestions and questions which I hope will help improve some parts of the discussion.

- I think that the conclusions and the title don't reflect clearly the conclusions of the study. Are the authors saying that for instance the LDI proxy is not suited for upwelling environments' temperature reconstructions? If so then why not say it more clearly?
- Figure 1 – could the authors add some seasonal SST maps for the same area? It would help visualise the SST changes regionally.
- Error bars are missing in the text and on the figures. For instance if we take into account the LDI calibration error bars (plus or minus 2°C) then the SST_{SAT} and SST_{LDI} values overlap better (not talking about lead and lags). The same for Uk temperatures.

Line 340: with the error bars, is that statement needs to be revised?

- Line 246 – define subsurface
- Line 260 – dust events: please explain briefly what is measured and how. I know that it is detailed in Romero et al 2020 but it would help to have a few words in the manuscript.
- Line 261 typo– Mauritanien and not Mauretaniien

Please proof read carefully the manuscript for typos and English.

- Line 393-395. I don't understand this sentence
- Line 422 'perfectly sinusoidal'? 'anti-correlation'
- Line 422-425. This paragraph is too long and unclear. Please rephrase
- Section 4.5 – could there be a lateral transport of alkenones (other regional source of alkenones) that could explain the observed differences? Have the authors considered that possibility?