

Revision Notes to manuscript bg-2019-146: *Spatial distribution of environmental indicators in surface sediments of Lake Bolshoe Toko, Yakutia, Russia*

12 September 2019, Biskaborn et al.

Associate Editor Decision: Publish subject to minor revisions (review by editor) (10 Sep 2019) by S. Wajih A. Naqvi

Comments to the Author:

Dear Dr. Biskaborn

Your revised manuscript has now been seen by one of the original referees. S/he is generally happy with the revision but has still made a few more comments. I request you to kindly consider them carefully and make changes in the manuscript accordingly. I will then examine it myself and we will hopefully complete the review process soon.

Looking forward to hearing from you and with kind regards

Sincerely

Wajih Naqvi

(Our answers indented and marked in blue)

Dear Dr. Naqvi,

Thank you very much for the positive answer and the possibility to resubmit our manuscript after minor revision. We revised the manuscript and the ESM carefully following all comments of the reviewer. We documented all changes in the revision notes provided in the following point-to-point answers.

With best regards on behalf of all authors,
Boris Biskaborn

Reviewer Anson Mackay and our answers

General comments

This is a much improved version where the authors have comprehensively addressed reviewer comments from both myself and Emilie Saulnier-Talbot. The manuscript is almost ready for publication, but the authors should take account of the minor amendments suggested below.

Dear Dr Mackay

Thank you very much for your repeated voluntary efforts to review our manuscript. We agree with your suggestions and revised the manuscript and the ESM accordingly. We prepared a point-to-point answer to each of your comments below.

With best regards,
Boris Biskaborn

Specific Comments:

The final line of the abstract, now begs the question: have you taken long cores from either of these two regions as part of your overall long-term studies? This does not need to be considered here, but will need to form part of consideration for site selection in future papers.

Yes, we already retrieved several long sediment cores from Bolshoe Toko, including these two areas with different sedimentological regimes.

We modified the last sentence in the abstract: "Our analyses suggest multiple coring locations preferably at intermediate depth in the northern basin and the deep part in the central basin, to account for representative bioindicator distributions and higher temporal resolution, respectively."

We also indicated the existence of long core material in the method section's field work part: "During this expedition also long core material was retrieved from multiple sites including the northern and central part of the lake and is planned for publication in a separate manuscript."

Introduction:

Line 89: ...isotopes in diatom silica...

Yes, we agree and changed accordingly.

Line 144 and elsewhere: sometimes you use paleo, sometimes palaeo; best to stick with one or other

Yes, we agree and changed everywhere in the manuscript to “palaeo”.

Fig 1: In the legend, should "drawned" be "drowned"

Yes, we agree and revised the figure accordingly.

Material and Methods:

Line 273: I think if you want to use AD/BC, I'd recommend using instead CE (common era)

Yes, we agree and removed “AD”, because it is not necessary there.

Lines 415-416: Does it matter than New et al. 2002 is quite old now, and the region has seen rapid warming since 1998?

The New et al. 2002 data set was used for development of the published chironomid based T July inference model (Nazarova et al., 2015) and till now remains one of the most reliable source of information available freely online <http://wcatlas.iwmi.org/> where the last version of the data are data to 2009, but the recommended citation is still New et al., 2002. Our very recent comparison (personal, unpublished) of the data provided by <http://wcatlas.iwmi.org/> with the <https://crudata.uea.ac.uk/cru/data/crutem/ge/> data demonstrated, as expected, nearly no difference. However, we plan to use the more modern data for the development of the next generation of the chironomid-based T July inference model in upcoming papers.

Fig 2a and Fig 3a: as these are diatom and chironomid codes, need to make a link to either species names in the Supp Info, or provide species names alongside codes here in the legend.

*Yes, we agree and provide the species names alongside the codes in the caption of the figures for the diatom and the chironomid graphs. Please also note: we found that *Pliocaenicus bolshetokoensis* was not visible in the diatom graph, due to some problem with another label placement, which is now fixed in the revised version.*

Results:

Line 526 and elsewhere: ideally for isotopes, use en-dash instead of a hyphen to signify a negative value

Yes, we agree and changed the symbol. It would be very nice to have additional type setting assistance from the journals type setter, also related to the format of the citations and avoid Word specific automatic formats that we cannot easily control.

Supplementary Info:

Fig II: is the y-axis label here correct? it suggests that species are plotted according to water depth; as each site will have a different water depth, I assume that each row is a different site, as indicated in the legend. But labels should be consistent between figure and legend

Yes, we agree. We added the sample ID's next to each observation of the relative abundancies to the right side of the graph. Now the graph includes both information on the water depth and on the sample ID for comparison with the map provided in figure 1 in the manuscript. (that was actually already done in the first revision effort but the figure was not properly exported from the software, we double checked now, thank you very much for noticing!)

Further changes marked

We carefully fine-tuned the content of the paper and performed English proof reading again after the revision. We also highlighted all changes we did beyond the comments of the Reviewers.