Biogeosciences Discussions

Biogeosciences Discuss., referee comment RC2
https://doi.org/10.5194/bg-2021-39-RC2, 2021

Comment on bg-2021-39

Daniel Nyvlt (Referee)

Referee comment on "Sediment and carbon accumulation in a glacial lake in Chukotka (Arctic Siberia) during the Late Pleistocene and Holocene: combining hydroacoustic profiling and down-core analyses" by Stuart A. Vyse et al., Biogeosciences Discuss., https://doi.org/10.5194/bg-2021-39-RC2, 2021

This is a scientifically very important manuscript, which brings for the first time the data on carbon storage in one of the lake in the Chukotka, Easternmost Euroasia. In spite of that I am very possitive about the scientific importance of the topic, I see numerous shortcommings in the presentation quality of the manuscript, as well as some scientific problems, which must be solved. This will surely needs further work of the authors to have the manuscript ready for acceptance and publication in Biogeosciences.

My main scientific concern is related to the lowermost lithological unit LU-III and its sedimentological interpretation. It is not clear from the text whether this is glacial, or lacustrine in origin. Sometimes it is decribed as basal sediment, at other places of the manuscript the glacier advance to the lake basin is described, besides I also found a place, where it is described as layered glacigenic! sediment. In general - more thorough work is needed to clerly describe depositional setting of all individual units.

The other problems of the manuscript relates to the position of boundaries of the three sedimentological units; correct usage of marine isotope stage boundaries vs. age; description of the valley and its origin; reason for omitting some of the radiocarbon ages for age-depth modelling; usage of terms shelf, hummock, basement and some others, which are generally used for different features in geosciences; better description of what the authors mean by coarse sediment; or claiming that rock flour of glacial erosional origin is clayey.

Furthermore, the following formal issues should be taken in account by the authors: the use of either British or American English and not mixing both; not to use the references in Results chapter; mostly incorrect use of references at places, where it appears that the authors worked in the area of concern, which is not true at all; incorrect use of upper and lower case initials at various places and some others.

The figures and graphs should be modified to show all important informations correctly. I have not seen the supplement figures, which might be my fault and could not judge their relavance and quality.

Numerous comments are given directly in an annotated pdf file.

Hope these comments with help the authors to improve the manuscript and I am happy to review it again.

Daniel Nývlt

Please also note the supplement to this comment:
https://bg.copernicus.org/preprints/bg-2021-39/bg-2021-39-RC2-supplement.pdf