Geochronology Discuss., editor comment EC1
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Comment on gchron-2021-15

Michael Dietze (Editor)

Editor comment on "A Bayesian approach to integrating radiometric dating and varve measurements in intermittently indistinct sediment" by Stephanie H. Arcusa et al., Geochronology Discuss., https://doi.org/10.5194/gchron-2021-15-EC1, 2021

Dear Stephanie Harmonie Arcusa and colleagues,

I have read the two referee comments and the manuscript again, with the referee comments in mind. I see that you have received two quite contrasting positions.

Referee 1 sees an overall high quality and novelty of the presented material, especially concerning the methodological approach. However, the referee also sees a need to improve some sections, and to revise the total length of the manuscript. I agree with the referee on many of these points and encourgae you to pay due attention when accounting for the demanded changes. Implementing the changes will most likely improve the quality and impact of the manuscript. Please consider the suggestion to rethink the need of the geochemical data. If you need it, please justify and valorise this substantially. If not, consider removing these results, an option that would also reduce the overall length of the text.

Referee 2 has provided a very detailed and negative report, including the criteria novelty and presentation quality. I read from the report that the referee raises serious doubts regarding the interpretation of the deposits as varves. It is indeed unfortunate that the report predominantly focuses on the question whether or not the material is annually laminated. Nevertheless, the comments should be addressed. Also, the further comments, questions and specific statements give in several cases valuable input that should be addressed. That said, I do not fully agree with the referee's statement that the study is poor througout in terms of significance and quality. I base this judgement also on the fact that the actual scope of the text is on the introduction of a methodological approach to account for intermittent sedimentation. Nevertheless, the concerns and suggestions of referee 2 need to be commented on and the manuscript must be revised significantly. Perhaps there are elegant ways to resolve the conflict of whether or not the material is anually laminated. Some of the specific comments appear quite detailed to me, which is good because they point you at locations that can potentially be optimised. However, in some cases, they cut quite severely into the personal freedom of an author’s freedom to write, or point at issues of only minor impact. However, I also see the need to consolidate the overall length of the manuscript. Perhaps it is worth to consider moving some of more detailed or secondary information to the supplementary materials and optimise some figures to account for the spotted issues.

In any way, I encourage you to submit a revised version of the manuscript, paying due

attention to the comments you have received from both referees. Please implement the requested changes or, if you are convinced the demanded/suggested changes are not eligible, provide a concise and robust explanation why you did not act in these cases. Once again, I see the potential and value of the study and the manuscript and would be delighted to see an updated version in the very near future, which will then be sent back to the two referees for another round of evaluation.