Earth Syst. Sci. Data Discuss., author comment AC1
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Reply on RC1

Bernhard Aichner et al.

Author comment on "Spatial and seasonal patterns of water isotopes in northeastern German lakes" by Bernhard Aichner et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-315-AC1, 2022

This is a nice new regional lake water isotope dataset from Germany. I have reviewed the dataset on Pangaea, which looks to be in good shape. The accompanying text and figures are appropriate and for the most part of high quality.

Re: we thank the reviewer for the effort of reviewing this data description manuscript (including the underlying data set, deposited on Pangaea) and for the overall positive evaluation. Below are our comments to the (mostly) technical details, as raised by the reviewer.

I have a few technical/presentation comments that should be addressed prior to acceptance:

1. Lines 67-69: please review and follow the guidelines for citing the OIPC: https://wateriso.utah.edu/waterisotopes/pages/data_access/oipc_citation.html

Re: we will update the citations to follow the OIPC guidelines.

2. Line 126: you say measurements were "routinely" checked for organic contimination...please clarify, does this mean they were always checked? If not, under what circumstances were they checked and what is the justification for applying those (presumably favorable) results to the rest of the samples?

Re: this was indeed not described sufficiently. We suggest to modify this section as follows "All measurements were post processed with the Picarro ChemCorrect™ software, which compared the measured spectra of the lab standards with the spectra of the samples. If statistical differences (i.e. baseline offset, spectral interference of organic compounds) between the two were too high, a warning flag was assigned and the sample was excluded."

3. Section 3.2: Please discuss and provide information on the analytical uncertainty. The

data files report uncertainties (1 sd) for the individual measurements, but the methods section doesn't explain how these were calculated or what they represent. Are the calculated from the replicate injections of each sample? If so, they give a partial measure of uncertainty but do not reflect batch-to-batch or external calibration uncertainty (which ideally would also be known). The methods section mentions a 'check standard' "M" but doesn't present any results or statistics on the reproducibility of the measurements of that standard...reporting this information would be useful in providing a broader metric of uncertainty.

Re: the reported 1 sd uncertainties in the data files are indeed only giving information about variability of δ-values from replicate measurements. We agree that the overall uncertainty of the analytical methodology should be estimated and reported (i.e. including parameters such as errors from calibration with standards, etc, to the overall analytical uncertainty). We suggest to do this in the method parts of the data description manuscript, but information could also be added to the abstracts of the Pangaea data sets.

With respect to the "M" standard we suggest to rephrase this section to clarify: "A fourth lab standard, M (δ18O -7.68‰ and δ2H -56.70‰), was used as quality and drift control after every 6 samples, i.e. serving as lab-internal control and not being used for calibration. Mean values calculated from all measured M lab standards were -7.68‰ for δ18O with a SD of 0.10‰ and -55.93‰ for δ2H with a SD of 0.31‰."

4. Lines 174-175: Please review the wording of this sentence, there is a word missing or out of place here.

Re: we will rephrase this sentence.

5. Figure 1: I would be helpful to provide either lat/lon ticks on the axes of this map or an inset showing the broader geographic context (e.g., outline of Germany or N Europe showing the study location) to help orient the reader.

Re: an inset will be added in the revised version.