

Earth Syst. Sci. Data Discuss., referee comment RC1  
<https://doi.org/10.5194/essd-2020-390-RC1>, 2021  
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## Comment on **essd-2020-390**

Anonymous Referee #1

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Referee comment on "tTEM20AAR: a benchmark geophysical data set for unconsolidated fluvioglacial sediments" by Alexis Neven et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-390-RC1>, 2021

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### General comments

Neven et al. publish what appears to be a good quality dataset that has a good potential for being adopted by the community. The geological context, acquisition parameters and procedure are well described and appropriate references are given for the reader to obtain additional information if needed. The authors are distributing the processed data as well as 1D inversion results. It is thus possible for researchers to immediately use the results, but also to extend the level of information attainable with the data by performing sophisticated inversion processes. The file formats are simple and also clearly defined, which should facilitate adoption of the dataset.

### Specific comments

Are the data and methods presented new?

Yes for the data. The methods used have been published before.

Is there any potential of the data being useful in the future?

Yes

Are methods and materials described in sufficient detail?

Overall, yes, but details about the method used to detect coupled structures (line 102) should be added.

Are any references/citations to other data sets or articles missing or inappropriate?

No, except @ line 69: ref to Christiansen is incomplete

Is the data set accessible via the given identifier?

Yes

Is the data set complete?

Yes

Are error estimates and sources of errors given (and discussed in the article)?

Yes, to some extent

Are the accuracy, calibration, processing, etc. state of the art?

Yes

Are common standards used for comparison?

N/A

Are there any inconsistencies within these, implausible assertions or data, or noticeable problems which would suggest the data are erroneous (or worse)?

No

As the data set usable in its current format and size?

Yes

Are the formal metadata appropriate?

Yes

Is the length of the article appropriate?

Overall, yes. In the conclusion, the authors mention that various so far unexplained geological structures are revealed by the new data, and I think that the paper would greatly benefit if 1-2 examples could be given.

Is the overall structure of the article well-structured and clear?

Yes

Is the language consistent and precise?

Yes

Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

Overall, yes, but section 3 (Data Validation) starts directly with an equation, and a sentence should be added first to introduce the topic.

Are figures and tables correct and of high quality?

The figures are of good quality. I think however that additional subfigures are needed. For instance, Figure 4 should also include the cross section with sharpness constraint inversion. Figure 5 should also show the results of a 1D inversion with sharpness constraint applied. A noisy sounding should also be shown, for the reader to appreciate the overall quality of the data.

*Other comments*

Around line 45, the authors should add that the dataset could also be used in future studies where other geophysical methods are used, to complement the analysis by performing joint inversion.