25th of January 2022

Review ESSD paper 2021 - 408

Dear authors. After carefully reading your article '2000 years of annual ice corer data from Law Dome, East Antarctic' I have some minor revisions that should be eliminated before publishing.

1. **Spelling mistakes and form**

Line: 1: Two times 'the'

Line 10: Delete brackets one time

Line 44: I would suggest to add the coordinates of the site.

Line 66: Space between '1' and 'm'

Line 81: be consistent: Here you write 'metre' but in the rest of the document just 'm'. If you insist to write meter here, than you should at least add a 's'.

Line 121: [...] detailed results of this analysis shows → delete 's'

Line 163: '.' at the end missing

Line 165: closing bracket missing

Line 215: should be 'and' and not 'an'

Line 222: Sentence starting with 'Overall [...]' does not make sense.

Table 1: I would suggest deleting .26 (DSS99) and to adjust the coordinates of DSS1617, so they have the same form as the others.

Figure 4: I would suggest adding information about the cores here. It would make it much easier to understand.

Line 130: Add reference

General:

Make sure you write either the number or the word (concerning number until 10). E. g. in line 82 you write '7', but in line 9 'four' decades.

Make sure you write either 'level' or 'Level'.

Make sure you write 'Fig.' in the text and not 'Figure' (at least be consistent).

Make sure you write either DSSMain or DSSmain

Paragraph 'Trace Ion Chemistry' → I suggest including an overview / table with the different methods used for the different cores as well as the reference.

Appendix A: Why are you suddenly writing about 'core A' and 'core B'

Content

In general I am missing in the paper the uniqueness and benefit for further research and other scientists of this dataset. There is neither a sentence about this in the abstract nor in the summary. As one of the main goals of ESSD products is the utility of the data ('authors should know, […] the data product interest a sufficient number of users'.)

➔ Please describe in much more detail, who benefits from the dataset, which kind of researchers might be interested in the products, and why is the new dataset much more useful than the old one.

Also be sure you make the validity and applicability of your dataset more clearly within the paper.

Dataset

Add information about 'coring devices'

Add information about missing or insufficient data (you write about this in e. g. Appendix A in the paper)

Add information (see above) in the metadata about the purpose. 'Why was/ is this study so important' (benefits for other researchers).