

Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on **essd-2021-408**

Anonymous Referee #2

Referee comment on "2000 years of annual ice core data from Law Dome, East Antarctica" by Lenneke M. Jong et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-408-RC2>, 2022

This data description paper by Lenneke Jong and co-authors presents composite records of oxygen isotopic composition, chemistry and accumulation rate from the Law Dome site in East Antarctica. Both raw data (against depth) and mean annual values are provided except for the isotopic record, where only level2 data are presented. While many citations are in the text about the use of these data, the authors should improve a bit on why these data are useful and to which communities apart from ice core and paleoclimate ones, for which it is clear.

The paper accompanying the data is well written, but I would suggest improving the structure. Sometimes I found some difficulties in understanding the differences between Main text, Appendices, Supplementary material with some figures inside the text and others at the end. It confuses ...

Moreover, when trying to access the data, clicking on the link at the end of the abstract and also in the Data Availability Section, a prompt asked me for an email address before continuing. On the other end, when I entered the section "View the data set contents" I was able to download the data. Please fix this.

Overall, some changes are needed before being published.

More detailed comments (apart from some typos....).

Lines 56-57: "The DSS record currently spans -11 to 2017 CE..." If I look in the online description, a -9 is reported. Please, fix.

Line 75: the length of the core DSS main and the drilling period are different in the text and in the Table 1.

Lines 89-90: to be honest it is not clear to me if the level 1 isotopic data will change in the future and so will change also the mean annual values of this composite Am I wrong?

In the trace Ion Chemistry section 3.1 I do find information on the precisions of the different analyses published in different papers I would recommend some reorganization (adding a table perhaps). The figure 4 and Table 2 are never cited in the text ... please add.

Line 142: figure 6 is at the end of the paper Why?

Line 146: see my comments above (from -9 or from -11??).

Line 163: Figure 7 at the end of the paper. Why?

Line 190: please explain the negative concentration values in figures B9 to B11.

In Appendix B, I found very useful the explanation of the data file headers but some of them are after the Reference section ... again I would suggest some reorganizations of the structure.

From figure B1 to B6, please, add in the figure captions the explanation of the panel at the bottom.