

Earth Syst. Sci. Data Discuss., referee comment RC3
<https://doi.org/10.5194/essd-2021-408-RC3>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on **essd-2021-408**

Elizabeth Thomas (Referee)

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-RC3>, 2022

The paper presents the ice core data from Law Dome, extending the previously published works and updating some of the available datasets. It sets a great example to the community to make the data from this iconic site available. The paper is well-written, provides the appropriate level of detail and I recommend it is accepted for publication. I only have a few minor suggestions for the text and figures below.

While I appreciate the importance of updating previously published records, I do agree that the paper might be improved if you specified why this is the case. Speaking as a user of ice core datasets I appreciate the good practice. It is also refreshing to see an age-scale revisited and more generous errors applied. However, perhaps you could spell this out in the introduction as justification for this work. For example, for large-scale reconstructions, data compilations or data-model comparisons (e.g., the PAGES compilations), it is essential that the most accurate records are available and citable.

Minor comments.

I found the jump between main paper, figures, and appendix a bit difficult to follow. For this style of data paper is an appendix needed? Or could the figures be included in the main text?

Line 50 – I found the word sequence “seasonal species variations” a bit odd. Perhaps “seasonal deposition of species”?

Table 2. It might be useful to include the time in the caption. Are these values calculated for the full length of the record?

Line 165 – closed bracket needed.

Line 171 – consider rephrasing. This sentence suggests that there are two definitions for summer which doesn't read well. What you mean is that different seasonal separations have been applied in different studies. But on its own, this sentence seems to suggest there is a summer and a warm period.

4.4. This data was also used in the PAGES 2k data compilation for snow accumulation. So, I assume this also needs to be updated?

Figure 6 – Perhaps align the legends? CI and snow accumulation headings seem out of place.

Figure A2 – Please increase the font size for the titles and legend.