

Authors' response to reviewers (second round) for TC 2022-172, "Reversible ice sheet thinning in the Amundsen Sea Embayment during the Late Holocene."

Mar 15, 2023

This response documents corrections to the paper in response to a second review by Nat Lifton. We appreciate the close attention of this reviewer to these technical items.

NOTE: We have not supplied a complete latexdiff comparison of previous and revised versions of the main text, because there are only three minor technical corrections in the main text.

There are additional corrections to two of the supplementary files, which are also listed below.

Corrections to main text:

(1) Reviewer comment: *On page 12, line 30, author comment AC1 erroneously cited instead of AC2.*

– Corrected in reference list on p. 23, line 17.

(2) Reviewer comment: *"P. 12, Line 15: The currently accepted half-life for 14C is 5700 ± 30 yr (www.nndc.bnl.gov) – see Hippe and Lifton (2014) – this was corrected on page 4 but not here."*

– Corrected '5730' to '5700' on p. 12, line 15.

(3) Reviewer comment: *"P. 12, Line 20: The 14C is not extracted in vacuum but rather in an atmosphere of ca. 50 torr (66 mbar) of high-purity O2. The procedure is correct in Supplementary Methods 2 - this should reflect that."*

– Corrected 'in vacuum' to 'in a high-purity O₂ atmosphere' on p. 12, line 20.

Corrections to Supplementary Table S5:

(4) Reviewer comment: *"However, they only present total atoms measured for each analysis, when the measured concentration is the key value for intercomparison. Also, when I calculate the concentrations of CRONUS-A from the quartz mass and total 14C atoms, for the previously published samples the values differ significantly from those presented in Table 4 of Goehring et al. (2019). An explanation should be provided if calculations were done differently for this table. "*

– Added notes to Table S5 clarifying how to reconcile the data in this table with those reported in Goehring (2019).

(5) Reviewer comment: *"In addition, for ID CA040417, the supplemental spreadsheet notes an anomalously high CO2 yield, but Goehring et al. (2019) indicate in their Table 4 that the sample was diluted prior to extraction with synthetic graphite. The note should be consistent with that explanation if that is the case. "*

– Added notes on this issue to Table S5.

(6) Reviewer comment: *"Supplement S5.xls: Indications of thick or thin tube on each worksheet should be explained in the notes on those sheets (or at least the first one of them). "*

– Added appropriate notes to Table S5.

Corrections to Supplementary Methods 2:

(7) Reviewer comment: *"In my original review, I also thought it would be important that the authors include a discussion of the CRONUS-A 14C measurements relative to nominal values of Jull et al. (2015), as they do for both 10Be and 26Al in Supplemental Methods 2 document. While they are citing the discussion on this topic in the Authors' Response to Reviewer 2 (me) dated Nov 22, 2022 in the main paper, they did not include any summary discussion paragraph in the 14C section of Supplementary Methods 2, which I thought would be an appropriate place. At the very least I think they should cite the AC2 discussion in the Supplementary Methods 2 document in the section discussing in situ 14C and CRONUS-A, to point the interested reader in that direction. "*

– Added a citation to the Author Comment in the section of Supplementary Methods 2 headed "blank correction."