

Interactive comment on “A centrifugal ice microtome for measurements of atmospheric CO₂ on air trapped in polar ice cores” by B. Bereiter et al.

Anonymous Referee #1

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The authors present a newly developed dry extraction technique for trace gas measurements on air trapped in polar ice cores. The technique uses centrifugal force to press the ice sample against a titanium knife shaving a thin ice layer during each revolution of the rotating ice sample holder. The authors demonstrate convincingly in many different experiments and comparisons the advantages of the novel device such as better extraction efficiency, less contamination, better reproducibility of CO₂ measurements, and higher sample throughput. The work presents a major experimental improvement in ice core studies.

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The paper is well organized and succinctly written and can be published as it is. For the final publication the authors may heed some editorial remarks below:

Page 7869, line 11-14: The sentence starting with “The melt extraction...” is awkward. Full stop after “... (Kawamura et al., 2003)” may correct this.

Page 7874, line 9: What is the membrane bellow made of?

Page 7879, line 9: “effects” instead of “affects”

Page 7879, last line: “than” instead of “as”

Capture of Fig. 4: The meaning of the last sentence is not clear. “..,whereas the samples with weights > 0 g were corrected for their average offset to their standard” reads for me as “all samples were corrected for...”. “Standards” would also be more appropriate since two concentrations were measured presumably with two standards.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 7867, 2012.