

Anonymous Referee #1

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The authors present an overview of existing radiocarbon dating results from a suite of global ice cores, and new information on updated analysis techniques and validation exercises. On the whole, these approaches are invaluable for providing chronological information from deep portions of alpine cores, where other techniques fail yet there is still sufficient ^{14}C available to provide reliable dates. I have no comments or concerns regarding the updated techniques or validation procedures demonstrated in the paper - all show the care and precision typical of this group. My main comment for the authors to consider during revision is the overall presentation (and title) of the paper itself. As suggested by the title, and in the introduction (lines 90-106), on one hand the authors see this as an overview paper. But a second goal (lines 105-106) is to present recent optimizations in the analytical technique. These are not mutually exclusive; however it seems to me that the original portion of this paper is the validation exercise (section 5.2). Make no mistake, I find the optimization and validation to be novel, useful, and certainly worthy of publication here. I'm simply suggesting that the authors refine the title and introduction to reflect this. The overview portions can stay as is - The summary in section 6 and Figure 6 are quite useful for projecting how the technique could be useful in other situations.

Response of the authors

Thank you very much for your review and your comments.

We agree that the title can be more explanatory of the content of the paper and modified it accordingly:

"Radiocarbon dating of glacier ice: overview, optimizations, validation and potential".

We also modified the last sentence of the introduction section to clarify the intention and content of the paper as following (line 109-111):

"Here we give an overview of the current status of the now routinely applied ^{14}C dating method for glacier ice including an update on recent optimizations and method validation. Uncertainties and potential of this novel approach are discussed and its successful application to a number of ice cores presented."