

Interactive comment on “The first luminescence dating of Tibetan glacier basal sediment” by Zhu Zhang et al.

Anonymous Referee #2

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General comments:

The Manuscript by Zhang et al. is interesting, original and well written and suitable for publishing in the cryosphere after a few minor adjustments.

Specific comments:

- 1)The inconsistency in chronology between the Guliya ice core record and the Kesang stalagmite mentioned in the introduction, should be described.
- 2)It seems that the dating has been performed on basal ice, however it is a little unclear and should be more clear!
- 3)"Ice content" and "water content" seem to be used randomly. This should be more

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clear.

- 4)The influence of the ice matrix on the dose-rate should be accounted for in detail and explained and an evaluation of dose-rate for each scenario should be performed.
- 5)The photograph of the Core 2 show a very clear transition to basal ice in the core, however Core 4+5 are retrieved at a different place at the ice-cap where the contour-lines in the map of Figure S1 suggest more ice dynamics, and the bottom part of the cores can be much more mixed. The 4-11 micro-metres fin-grained quartz used for the dating could be eolian material deposited onto the ice and therefore younger than the ice-cap. If this is the case, the grains would receive most of their dose after mixing with the basal ice. The authors should discuss this possibility.
- 6)In the conclusion the authors suggest collecting more suitable glacier basal sediment. It should be explained what "suitable" means.

Technical corrections:

page 1, line 9: more than one order of magnitude younger page 1, line 15: interpretation of this information. page 5, line 5-6: The sentence "We have no information about the behavior of ice in the sediment" should be rephrased.

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2017-68, 2017.

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