

Interactive comment on “Modeling the statistical distributions of cosmogenic exposure dates from moraines” by P. J. Applegate et al.

P. J. Applegate et al.

papplega@geosc.psu.edu

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We have made all the revisions called for by the reviewers. Their requests and our specific edits are listed below.

Please note that we have added one additional author, Ben Laabs, in the course of revisions.

Reviewer #1

“The real ‘punchline’ of this paper... [is] in the final discussion section.” Emphasized implications of the work for moraine age estimation: rewrote first part of abstract, added a paragraph to the introduction, placed applications into a distinct section, rewrote discussion

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“Equation (5) could be left in its exact form as an integral over time involving $P(t)$.” Showed the differential equation describing nuclide accumulation in buried boulders and the corresponding integral. Removed the discretized form of the equation.

“The paragraph... beginning ‘Although we do not emphasize...’ is not clear.” Changed “Although we do not emphasize boulder erosion...” to “...do not consider boulder erosion...” We do not take boulder erosion into account in this paper.

Reviewer #2

“p. 1407 Row 13: end of row add: cosmogenic isotope.” Change made as requested.

“Row 22: ‘left-skewed’ seems somewhat arbitrary...” Replaced all instances of “left-skewed” and “right-skewed” with equivalent phrases.

“...all the references to Applegate et al 2009 should be removed from the manuscript.” Removed all references to the companion paper and Applegate et al., in preparation.

“‘shorter’ seems awkward...” Replaced instances of “short” with “less tall,” or equivalent phrases.

“I don’t think I have ever heard of sublinear...” Removed the word “sublinear” from the text.

“Fig. 1... the final profile may not show the same undulations as the initial...” Removed Figure 1.

“...figure 5 is not needed...” Removed Figure 5.

“Fig 6. Panel d was difficult to find.” Clarified the location of panel d in the captions of Figures 6 and 7 (Figs. 4 and 5 in new numbering).

“Fig 8... highlight that it is the power of ten that is changing between the runs.” Clarified the units of diffusivity in the caption of Figure 8 (Fig. 6 in new numbering).