

Interactive comment on “Calibration of a non-invasive cosmic-ray probe for wide area snow water equivalent measurement” by M. J. P. Sigouin and B. C. Si

Anonymous Referee #1

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Regarding the (apparently) shrinking footprint, I think the salient point is that a paper has recently been published which seems to contradict an earlier paper. However, paper 2 does not necessarily supersede paper 1, as implied by reviewer 1. My suggestion is for the author to note the controversy, cite paper 2, and state that their experiment was designed before paper 2 came out. The author should then recalculate the regression using only the nearest points, and see if the regression improves.

Regarding the accuracy of the cosmic ray method compared to other continuous methods: to address reviewer 2 it seems that one would have to compare cosmic rays to a distributed array of continuous methods, which is not a very practical exercise. The latter approach may (or may not) be more accurate, but is rarely going to be operationally

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feasible outside of an intensive research setting. Therefore, to be more accurate than this should not necessarily be the goal of the work. Given limited resources the use of field campaigns seems like a fair compromise to me. The author need not be reticent about these facts.

Nonetheless, the author might better emphasize the value of his work by pointing out that numerous sensors like the one he used are already in the field but are currently used only for summer soil moisture observations (e.g. cite US COSMOS network, other networks). At many of those sites SWE data can also be extracted at no extra cost. The author might also point out that the non-contact nature of the cosmic ray method suggests that it could be implemented in ways not practical using conventional methods, such as in continuous mobile or "stop and go" surveys from a motor vehicle.

Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2015-216, 2016.

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