

Interactive comment on “Fractional snow-covered area: Scale-independent peak of winter parameterization” by Nora Helbig et al.

Anonymous Referee #2

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General Comments

The research presented is good progressive development of the lead author’s previous research parameterizing fractional snow cover area. Improved empirical parameterization of sigma snow depth is presented in this research.

Specific Comments

The 11 diverse spatial, high-resolution snow depth data sets were pooled to develop an empirical parameterization for sigma snow depth. There is some discussion of how snow depth data from the sensors/platforms affect results in different sections of the paper. Can a summary of which sensor/platform provides the “best” snow depth data set resulting in a better parametrization for sigma snow depth?

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Done with snow depth data sets at annual maximum snow cover, how might parameterization of sigma snow depth with data sets collected at mid-season or late season of snow cover affect the results? Is there a preferred time in relation to seasonal snow cover to collect a high-resolution snow depth dataset? Is it possible to use multiple snow cover data sets collected at a site at different times during the season to parameterize sigma snow depth?

Technical Corrections

Line 108: Suggest delete “large quantity”, it is an unnecessary qualitative description of data used.

Line 137: The words “than for the” cause some confusion. Was the ALS data processed similar to the ASO campaigns or different from those campaigns?

Line 173: “lower zero” should be lower than 0, or snow depth \leq . “above” could be changed to $>$. And units should be given with “threshold of zero”

Line 228: “pearson” should be capitalized, prop noun. Applies throughout the paper.

Line 307: The expression “strike out” would be better stated as standout.

Line 398: Please clarify “not origin”. Possibly originate is a word that could clarify source.

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2020-221, 2020.

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