

## ***Interactive comment on “Intercomparison of photogrammetric platforms for spatially continuous snow depth mapping” by Lucie Anne Eberhard et al.***

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Dear Mr. Deschamps-Berger

Thank you very much for the comments. The point you make about the methodological differences that led to the reported values in each paper is very important and should have been clarified and discussed in Section 6.1, so that the relative performance across the three studies can be better interpreted.

We agree with your first point that we should discuss our results in relation to the size of the test area, which at 3.59 km<sup>2</sup> is very small. But we put a lot of emphasis on

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the validation with the eBee+, because the ultracam has never been tested on snow. Bühler et al, 2015 used an ADS80-SH52 sensor which is an optoelectronic line scanner and not an aerial camera. Furthermore, the imagery was processed with ATE SOCET SET. Also, the imagery had an average GSD of 0.25 m and not 0.06 m as we had. Nolan et al, 2015 used an aerial camera system but nothing similar to Ultracam.

To your second point we would like to say that we do calculate snow depth maps but we only compare the snow-on DSMs. Whenever we compare two snow depth maps, the snow-off reference is the same. Therefore, the error from the snow-off DSM is the same for both subsequent comparison DSMs and will not influence the results.

We will therefore refine our discussion, especially section 6.1 to clarify and expand the methodological differences you pointed out.

Bühler, Y., Marty, M., Egli, L., Veitinger, J., Jonas, T., Thee, P. and Ginzler, C.: Snow depth mapping in high-alpine catchments using digital photogrammetry, *The Cryosphere* 9(1), 229–243, doi:10.5194/tc-9-229-2015, 2015.

Nolan, M., Larsen, C. and Sturm, M.: Mapping snow depth from manned aircraft on landscape scales at centimeter resolution using structure-from-motion photogrammetry, *The Cryosphere*, 1445–1463, doi:10.5194/tc-9-1445-2015, 2015.

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Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2020-93, 2020.

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