

## ***Interactive comment on “Linking snow depth to avalanche release area size: Measurements from the Vallée de la Sionne fieldsite” by J. Veitinger and B. Sovilla***

**Anonymous Referee #1**

Received and published: 17 March 2016

\* Does the paper address relevant scientific and/or technical questions within the scope of NHESS? Yes

\* Does the paper present new data and/or novel concepts, ideas, tools, methods or results? Yes

\* Are these up to international standards? Mostly

\* Are the scientific methods and assumptions valid and outlined clearly? No, unfortunately an important part of the description of the method is only understandable for readers with in-depth background of the referenced works by Sappington (2007) and Wood (1996). The authors miss to explain in an understandable way for a common

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reader the difference between window, neighborhood window, kernel window, scale, multi-scale, and possible grid-size. However this is important for the reader to understand the limitation of the method finally.

As I understand, the authors use a grid with a resolution of 0.5 m and you look at a window of 3x3 grid cell. This mean you consider an area of 1.5 times 1.5 m<sup>2</sup> to evaluated? However in many case available grid data may have a much lower resolution.

The author indicate only briefly (in a figure caption) which "scale" they finally use.

\*Are the results sufficient to support the interpretations and the conclusions? The data seem to provide some indication.

\*Does the author reach substantial conclusions? It would be nice if the author would discuss the limitation of their approach a little more. To which extent does the grid size influence their results, etc.

\* Is the description of the data used, the methods used, the experiments and calculations made, and the results obtained sufficiently complete and accurate to allow their reproduction by fellow scientists (traceability of results)? No, see comments above on scale vs resolution and window size.

\* Does the title clearly and unambiguously reflect the contents of the paper? Yes

\* Does the abstract provide a concise, complete and unambiguous summary of the work done and the results obtained? More or less, yes. Not sure what the authors mean with "The assessment of potential release area size is nowadays mainly based on terrain analysis; however, it is assumed that with increasing snow accumulation and the attenuation of terrain irregularities larger release areas may form."

Practitioners don't use properly only terrain analysis to identify release area estimates.

\* Are the title and the abstract pertinent, and easy to understand to a wide and diversified audience? Yes

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\* Are mathematical formulae, symbols, abbreviations and units correctly defined and used? If the formulae, symbols or abbreviations are numerous, are there tables or appendixes listing them? No some mixing in use of symbols , e.g. dHS vs. HN in tables and figures. I Propose to use symbols according to

Fierz, C., Armstrong, R.L., Durand, Y., Etchevers, P., Greene, E., McClung, D.M., Nishimura, K., Satyawali, P.K. and Sokratov, S.A. 2009. The International Classification for Seasonal Snow on the Ground. IHP-VII Technical Documents in Hydrology N°83, IACS Contribution N°1, UNESCO-IHP, Paris.

\* Is the size, quality and readability of each figure adequate to the type and quantity of data presented? Does the author give proper credit to previous and/or related work, and does he/she indicate clearly his/her own contribution? Yes \* Are the number and quality of the references appropriate? Yes

\*Are the references accessible by fellow scientists? Yes \*Is the overall presentation well structured, clear and easy to understand by a wide and general audience? Yes \* Is the length of the paper adequate, too long or too short? Yes \* Is there any part of the paper (title, abstract, main text, formulae, symbols, figures and their captions, tables, list of references, appendixes) that needs to be clarified, reduced, added, combined, or eliminated? Yes, see some comments above and in attachment.

\* Is the technical language precise and understandable by fellow scientists? Yes \* Is the English language of good quality, fluent, simple and easy to read and understand by a wide and diversified audience? Yes \*Is the amount and quality of supplementary material (if any) appropriate? NA

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-7/nhess-2016-7-RC1-supplement.pdf>

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