

Interactive comment on “Avalanche Impact Pressures on Structures with Upstream Pile-Up/Accumulation Zones of Compacted Snow” by Perry Bartelt et al.

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Regarding the debate about the correct form of equation (4) of the presented paper by Bartelt et al., the question traces back to a common problem in the study of geophysical phenomena: The time rate of change of a domain containing a discontinuity surface. It can be expressed by the Reynolds transport theorem for the case when a volume is intersected by a moving discontinuity surface. The solution of the problem leads to set of jump conditions for the various balance equations as Thierry Faug indicates. The description of the problem can be found in textbooks about continuum mechanics and the willing reader is referred to those, e.g.:

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Ichikawa, Y. & Selvadurai, A. P. S. Transport Phenomena in Porous Media, Springer Berlin Heidelberg, 2011 , 9-76, Chapter 2.

Hutter, K. & Jöhnk, K. Continuum Methods of Physical Modeling Springer, 2004, Chapter 3.

Greve, R. Kontinuumsmechanik Ein Grundkurs für Ingenieure und Physiker, Springer Berlin Heidelberg, 2003; Kapitel 2.2

Casey On the derivation of jump conditions in continuum mechanics International Journal of Structural Changes in Solids – Mechanics and Applications, 2011 , 3 , 61-84

or others.

Best Regards

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-154>, 2018.

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