

Interactive comment on “Deriving customized terrain classes for avalanche risk management in mechanized skiing operations from operational terrain assessments” by Reto Sterchi and Pascal Haegeli

Anonymous Referee #1

Received and published: 31 August 2018

The paper presents a customized method to evaluate and classify ski-runs in the areas of two Canadian heli-ski companies. The problem that heli-ski companies face is that they need to reduce the risk of an accident to the maximum and at the same time minimize the limitations for their guests' experience. Therefore a sophisticated and detailed run classification can be of great value to them at the planning stage. While ATES originally targeted the "unaware" users (beginners) in their planning, the presented classification targets professional heli-ski enterprises and heli-ski guides in their specific environment, which is new. The authors use sufficiently large datasets from several

C1

winters consisting of operationally rated runs from ski-run lists of these two companies. Furthermore, assessments of experienced heli-ski guides are used. They include terrain aspects, in respect to diverse hazards, including avalanche danger. They also use quality-aspects of guest-skiing, ski-guiding, heli-accessibility etc. Therefore, the term "terrain classification" can be misleading, use perhaps "ski-run classification for mechanized skiing operations", and instead of "terrain hierarchy" rather "ski-run hierarchy". Boot-stamped runs and very heavily tracked runs might distort the classification significantly and should be in a separate class altogether. More information on how the "runs" are defined in space (point, line, area/slope) as well as the "paths" of avalanches should be given. The method offers more detailed ratings, however the nature of the expert assessments makes it subjective and not directly transferrable to other operations. You might want to explain more clearly, how other heli-ski operations could apply the method for their settings and what the limitations are. The study's declared aim is to provide a basis for risk management. However, it is not shown, if in fact the new method could affect the risk management. Including a risk analysis (with presented accident data) would greatly enhance the paper and make it more valuable for the journal's audience. Otherwise, the risk management aspect should not be part of the paper-title nor of the aim of the study. Suggested title without risk analysis: "Deriving customized ski-run classes for two mechanized skiing operations in Canada from operational assessments" Generally, it is important to stress very strongly that a run classification is a planning tool and does not replace the ongoing re-assessment by the users in the terrain.

The paper is generally well structured, referenced and written. The two figures are difficult to follow/read in detail because very condensed. Add legend/explanation of the colour-coding in figures 1b and 2b in the figure captions. Change typing on page 10, line 2: six group -> six groups