The Cryosphere Discuss., 8, C466–C467, 2014
www.the-cryosphere-discuss.net/8/C466/2014/

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Interactive comment on "Projected changes of snow conditions and avalanche activity in a warming climate: a case study in the French Alps over the 2020–2050 and 2070–2100 periods" *by* H. Castebrunet et al.

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Received and published: 16 April 2014

General comments:

This study introduces a method to project future changes in avalanche activity based on an index, which can be estimated with the help of a snowpack and input from a regional climate model. The authors achieve their results by combining an observed avalanche index with a modeled stability index. Furthermore, they have to average over space and time in order to get feasible results. Such an approach has not been

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tested so far and is therefore definitely worth to be published. However, such approach is based on lot of assumption and the diversity of the applied methods accumulates to a combined uncertainty which is hard to quantify. Therefore, it is very important to clearly mention that the projections are based on one GCM-RCM model chain only. In regard to this fact please also discuss the projections of this model chain compared to other model chains (e.g. ensemble mean and standard deviation). Otherwise, the authors mention the uncertainties and limitations of their methods in the last chapter. Due to the importance of the uncertainties for the interpretation of the results I suggest to place them more prominently, e.g. in an own sub-chapter.

Overall, the topic is relevant. The suitability of the applied mathematical methods is beyond my expertise. The study contains novel approaches and the manuscript is generally well written and organized. Nevertheless, some sentences are unclear and others so long, that they are hard to understand. Please find the detailed comments in the attached PDF-file.

Please also note the supplement to this comment:
http://www.the-cryosphere-discuss.net/8/C466/2014/tcd-8-C466-2014-supplement.pdf

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Interactive comment on The Cryosphere Discuss., 8, 581, 2014.