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Interactive comment on "Elevation dependency of mountain snow depth" *by* T. Grünewald et al.

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First we want to thank J. Parajka and an anonymous reviewer for their constructive comments. We are confident that their input helps to considerably improve the manuscript. We are providing our answers to their important comments - for clarity we always repeat the comment first (marked with R) The answer is marked with A

R: Specific Comments 1) I would suggest to state more clearly that the main focus is on the spatial distribution of snow depth approximately at the time of maximum snow accumulation, rather than to investigate the temporal variability in snow depth - elevation relationship.

A: We agree and are going to state clearly that the data reflect the peak of the accumulation seasons in the revised version.

R: 2) The introduction will be more balanced if more weight will be given to studies look- ing on snow patterns and scaling (please give more details/findings from already cited studies and some other papers given in the references below). The precipitation vari- ability is certainly important, but the main focus here is the snow depth spatial vari- ability (elevation dependency). A similar shape of the relationship is e.g. found in the Carpathians (see e.g. Turcan 1975 or Holko, 2000).

A: We are going to enhance the focus on snow by adding a paragraph on the suggested literature

R: 3) Please consider to extend the Discussion and to indicate the challenges and implications of the findings (e.g. temporal stability of snow cover patterns - within a season, between years, effect of vegetation, how can the findings improve the operational practice).

A: Most of the suggested points are already discussed in the Conclusions. However, will be extended the text on the suggested points.

R: Specific comments 1) Please consider to move/split the sections 2.1 and 2.2 to the introduction (and Data section). In the methodology, some more details on how were the ALS/ADP data processed might be useful.

A: We think that the structure of the manuscript is more consistent if 2.1. and 2.2 remain separate sections. We are going to provide more information on the processing (Lidar: average point densities of raw data, averaging of DEMs from point clouds, masking of outliers; ADP: processing steps, software used for image orientation, point matching, point cloud generation and gridding, point density, masking of outliers and vegetation);

R: 2) Study sites: A paragraph summarizing the similarity and differences between the study sites will provide some important information which will support the interpretation of the results

A: We are including an overview figure of the locations of the study sites. We also

agree to add a short description on differences and similarities. We war going to keep this description short and refer to the available literature.

Interactive comment on The Cryosphere Discuss., 8, 3665, 2014.