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Interactive comment on "Local reduction of decadal glacier thickness loss through mass balance management in ski resorts" *by* A. Fischer et al.

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Fischer et al (2016) provide by far the most extensive examination of the impact of ski area management on local glacier mass balance. This is a unique data set that cannot be matched elsewhere; hence this contribution provides a valuable snapshot at a critical moment for ski areas with glacier terrain response to climate change. Most of the comments below are quite minor. Considerable figure consolidation could be completed. Brief reference to the practice in other nations is warranted. Also the impact of new snow and grooming on increasing albedo should be mentioned, even though, the point of this study was not to quantify that impact.

2-1: to store and maintain snow. . ..

2-13: The to They

2-17: Not only has visitor demand developed over time but cable car technology has advanced. . .

3-3: Crevassed reduced not just at ski areas but on other glaciers too, for example Colgan et al (2016) Pelto and Hedlund (2001)

3-5: Is removal of rock, sand and dirt from the piste not a goal? Grooming and new snow production oth increase the albedo. This is a goal noted by some of your previous research.

7-26: I assume the 35% and 65% reduction are compared to adjacent areas of the same glaciers, if so more clearly state this. Somewhere it would helpful to reference typical thickness loss values from either WGMS reporting Austrian glaciers or from the inventory, as a wider reference.

9-2: Continuous grooming will increase albedo.

10-26: I agree with this assertion "In any case, submergence and emergence should be similar for the profiles and the reference profiles"

11-2: Grooming would also reduce albedo.

12-3: It is worth noting that mass balance management extends to Tignes, France; Whistler, BC and Mount Hood, OR.

12-28: The enhanced prominence of managed area versus managed areas, generates steeper slopes as noted. This in turn should increase ablation. Will also act both as a wind scour and potentially wind trap for accumulation. Is this observed?

Figure 1: Ski area boundary line should be more distinct color.

Figures: The number of profile figures is impressive. However, collectively they are redundant and also detract from highlighting important overall trends. The variation

from profile to profile becomes the focus. I would suggest utilizing only two sets from each glacier, or focusing more on the central panel. The central panel alternative takes advantage of the fact that Table 3 provides the data from the third panel for each glacier. Figure 1 provides profile location. Hence, you could just use the middle panel for all but two profiles on each glacier.

Colgan, W., H. Rajaram, H., Abdalati, W., McCutchan, C., Mottram, R., Moussavi, M. and Grigsby, S: Glacier crevasses: Observations, models, and mass balance implications, Rev. Geophys., 54, 119–161, doi:10.1002/2015RG000504, 2016.

Pelto, M.S., and Hedlund, C.: The terminus behavior and response time of North Cascade glaciers. Journal of Glaciology 47: 497–506, 2001.

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