

Interactive comment on “Snow instability evaluation: calculating the skier-induced stress in a multi-layered snowpack” by F. Monti et al.

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This is a well presented study that develops a new approach for evaluating the skier induced stress in a multi-layered snowpack, which is important for numerical predictions of snow stability. The authors compare their methods with past approaches, and utilize some field data and simulated snow profiles in their analyses. I did not find any significant problems with the paper, and I suggest it be published with only minor changes. My comments and corrections: Page 4834, Line 15: Change “well produced” to “did well reproducing” Page 4836, Line 11: Change to “stress concentrators” Page 4838, in the discussion of the method, I think the authors should mention here that this method will not discriminate between snowpacks with similar layers, but a different

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order of layers. The authors later discuss this in several points of the paper, but I first noticed this here and it would be good to have that point acknowledged in the Methods. Page 4843, Line 20: Isn't the slab almost always more rigid than the weak layer? In the field I cannot think of a case where the weak layer was more rigid than the slab. Perhaps re-word this sentence to indicate that? Page 4843, Line 24: Delete the word “using” Page 4844, Line 9: I am hoping this point will be discussed further, but that can probably be saved for the Discussion. Page 4845, Lines 3-4: Replace “more than 2 times smaller” with “less than half” Page 4847, Line 6: Replace “deep” with “from the surface” Page 4848, Lines 22-25 and Page 4850, Lines 17-18: My main comment for this paper is that I would like to see this limitation of the study discussed in more detail. What do the authors think about this limitation? And, what are the implications of this limitation for their results. It would be interesting to address this both in the discussion and perhaps in the conclusions as well. Page 4850, Line 26: Delete “exemplarily”

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