**The Cryosphere
Discussions**

Interactive comment on "Ground penetrating radar detection of subsnow liquid overflow on ice-covered lakes in interior Alaska" *by* A. Gusmeroli and G. Grosse

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I would like to thank Dr. Heilig for his very constructive review. His comments are very valuable and address important issues that need to be incorporated in the manuscript for completeness and thoroughness. In the revised manuscript we will certainly correct amplitudes for geometric divergence and we will re-run the model using the slush framework that Heilig suggested. We will also address the minor comments that he arose.

The two main concerns pointed out by the reviewer are crucial, but are also very easy to solve and not major as defined in the review. I totally agree with the reviewer that

amplitudes need to be corrected for geometric spreading. However, the correction changes results and interpretation in a very insignificant way (see example Figure 1 of this comment). The corrected amplitudes still show very clearly strong step-like geophysical changes across the dataset. These changes are due to subsnow water which was either absent or only weakly noticeable in the areas marked with black arrow in the Figure. In the revised version of the manuscript we will add more of these plots with amplitudes corrected for geometric spreading and discuss this issue to remove any ambiguity.

I thank Dr. Helig again for his time and thorough comments and I look forward to revise the manuscript accordingly.

yours sincerely, Alessio Gusmeroli, alessio@iarc.uaf.edu

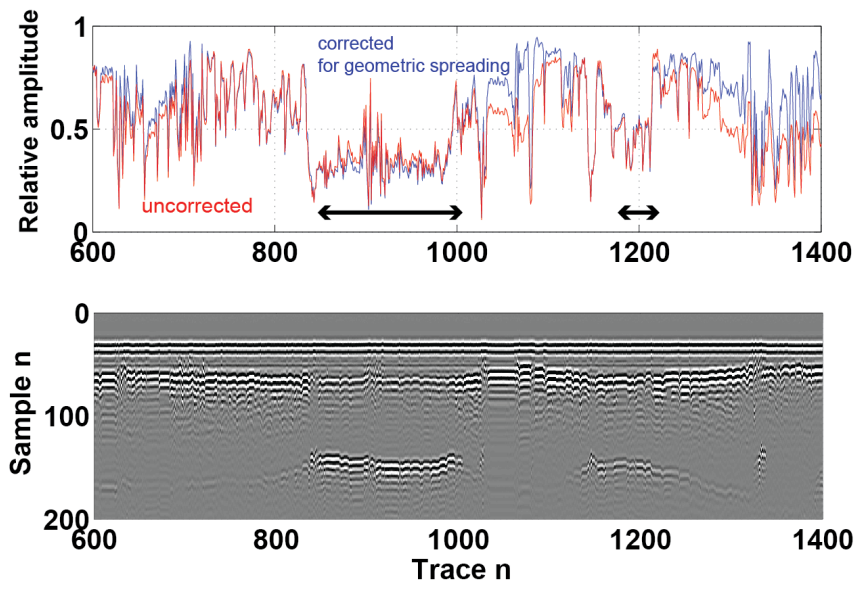Interactive comment on The Cryosphere Discuss., 6, 3079, 2012.

Fig. 1. Normalized maximum spectral amplitude of the snow-ice reflector at Killarney lake. The correction for geometric spreading suggested by the reviewer is important but very easy to make.