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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Forest harvesting impacts on micrometeorological conditions and sediment transport activities in a humid periglacial environment" *by* F. Imaizumi et al.

F. Imaizumi et al.

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We sincerely thank you for the efforts you have made to improve our paper submitted to Hydrology and Earth System Sciences. We have responded to all review comments in the following paragraphs.

[Comment] In general, this study is a very interesting. The article has a clear idea. The research method is reasonable, the content is detailed and data is reliable. However, there are still some places that need to be revised, and I will mention it and suggest that the author supplement it. So I suggested that this manuscript should be published after minor modifications.

[Reply] It is our great pleasure that the reviewer is interested in our study. We think comments from the reviewer are very helpful for us to improve our manuscript. Please see replies listed below.

[Comment] 1. I suggest that the author add "Sediment transport activities in the periglacial environment are controlled by hillslopes micrometeorological conditions (i.e., air and ground temperatures, ground water content), which are highly affected by vegetation cover. Thus, there is a possibility that forest harvesting, which is the most dramatic change to vegetation cover in mountain areas, may severely impact sediment transport activities in periglacial areas (i.e., soil creep, dry ravel). Knowledge of the effects of forest harvesting on sediment transport are needed to protect aquatic ecosystems as well as to develop better mitigation measures for preventing sediment disasters." in abstract part into introduction.

[Reply] Thank you for your suggestion. We think the section is the key point of our paper. We will insert the section into introduction to emphasize the key point of our paper.

[Comment] 2. I suggest that the author add the main conclusions (including specific change indicators) into the abstract part.

[Reply] Based on the comments on by the reviewer, we will add the main conclusions of this paper in the abstract.

[Comment] 3. Although various changes have been put forward before and after forest harvesting in this paper, there is no specific quantitative index and data explanation.

[Reply] As the reviewer points out, many changes in micrometeorological conditions and sediment transport processes are qualitatively explained in the text. We will add quantitative explanations in the text. For example, we will improve statements on net radiation (pg. 10, lines 2-4), frequency of freeze-thaw cycle (pg. 10, lines 11-12), and snow depth (pg. 10, lines 13-16) by showing specific values.

[Comment]4. There are a lot of pictures in this article, but some of the graphs are a little messy. I suggest the author revise the picture. When the reader sees the picture, they will understand the scientific meaning of this picture.

[Reply] We think the reviewer concerns about Figs. 5 and 11, which include many graphs inside. We will separate graphs in Figs. 5 into two different figures. We will divide Fig. 11 into two figures, too.

[Comment] 5. The conclusion part is only of a list of the results. I recommend its refining.

[Reply] We will simplify the first paragraph in the “Summary and Conclusion”, in which results and discussion in this paper are summarized. In addition, we will add conclusive sentences in the conclusion.

[Comment] 6. There are many problems in the language of this article. Please modify carefully.

[Reply] We will ask a native English speaker to check English throughout the manuscript.

Thank you again for your helpful comments.

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