Interactive comment on “Climatic and topographic influences on glacier distribution in the Bhutan Himalaya” by H. Nagai et al.

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We thank the editor for the helpful suggestion. Our manuscript will be changed substantially.

> There are major concerns regarding the PMS concept
That will be removed in the revised manuscript.

> There is too much overlap with an earlier study published the similar authors
We will focus on detail method and evaluation of our glacier outlines to avoid the repetition.

> There is some concern regarding the methodology to delineate the glaciers and the
debris-covered portions
How the glaciers are delineated will be explained visually, and its quality will be evaluated compared with other inventories.

> The relation to climate is too simplistic
We will remove the analysis related to climate.

> There is a lack of rigorous statistical analysis to support the results.
Basic topographic variables of the glaciers will be focused on instead of the analysis of ELA and precipitation.

> Several important studies were not considered especially with respect to debris cover
Previous papers on debris-covered glacier which reviewers introduced us will be referred in the revised manuscript. Our discussion on elevation distribution of debris-covered glaciers will be removed.

We aim to revise this manuscript to the following frame.

Temporary title: Comparison of glacier inventories in the Bhutan Himalaya

[Introduction]
- Introduction of present glacier inventories and their delineation methods - Introduction of the outlines of glaciers in the Bhutan Himalaya generated by Nagai et al. (2013) - Issue: The quality of the inventories in the Bhutan Himalaya is not validated. - Purpose: This study aims to compare the qualities of manual delineation (i.e. our inventory) and semi-automatic delineation (i.e. the ICIMOD inventory, GLIMS database, and the RGI), and show sensitive and insensitive variables of glacier distribution in the Bhutan Himalaya.

[Data sets]
- Description of the Bhutan Himalaya - Data and processing of ALOS PRISM/AVNIR2

C915
images - Data and processing of ASTER GDEM2 data

[Methods]
- Description of manual glacier delineation - Flowchart of delineation process - Figures of delineation process

[Results]
- Basic statistic and topographic variables obtained by our outlines - Characteristics of the glaciers in the Bhutan Himalaya focusing on north-to-south contrast

[Discussion]
- Quality comparison between pre-revised and revised outlines of ours. - Quality comparison between our revised inventory and other inventories - Analysis of sensitive and insensitive variables among these different inventories

[Conclusion]
- Largely different values and similar values of glacier distribution variables among the different glacier inventories

Thank you in advance for your consideration.

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