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Interactive comment on "A New Remote Hazard and Risk Assessment Framework for Glacial Lakes in the Nepal Himalaya" *by* D. R. Rounce et al.

Anonymous Referee #2

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General comments: The contribution of this work is significant, because the authors bring new data about remote area which is hard to access and the methodology is appropriate in general. However the methodology should have its own chapter. In this paper are the methodological aspects incorporated into the chapter 4., which also State of Art. Beside this results are connected in one chapter with discussion. I do not see the reason for this. It will be better to present clearly the results and discuss in a separate chapter new results with already published papers (or to show limits of this methodology).

Specific comments: I have doubts that the most common trigger of GLOFs is mass movement everywhere – there could be regional differences (page 2, line 8-10).

Chapter 4.1.1.: I do not understand why landslides were excluded. There could be

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landslides from the inner part of the lateral moraines and due to the glacier retreat new fresh slopes will be prone for sliding. Such waves might be smaller but they could trigger cascade effect – e.g. increase erosion of the dam.

Page 10, line 1: why you set up the upper limit for rockfall prone areas for 60° ?

Page 10, line 1: lateral moraines are not “rockfall prone” areas but “landslide prone” areas ! It is true that they are well developed from morphological point of view but they are not stable. They are too fresh. It is also true that they will not loose large amount of material in one moment but cascade effect could happen (see above).

Chapter 4.1.5: In the list of GLOFs models could be also the HEC-RAS model mentioned (e.g. Klimeš J., Benešová M., Vilímek V., Bouška P., Cochachin A.R. (2014): The reconstruction of a glacial lake outburst flood using HEC-RAS and its significance for future hazard assessments: an example from Lake 513 in the Cordillera Blanca, Peru. Natural Hazards, 71, 3, 1617-1638, 10.1007/s11069-013-0968-4).

Page 19, chapter 5.1. Is Imja Tsho a supraglacial lake? Probably not – it looks like proglacial lake from Google Earth. It is good to use specific names of glacial lakes – more precise.

Page 23, line 14-15: I don believe that the lateral moraine could protect the lake. If you look on Google Earth there is visible a clear contribution of sediments from N-NE (a dejection cone) which already party destroyed the lateral moraine.

Page 41, Fig 5: Is there some reason that GLOFs hazards is in 4 categories and the downstream impact only in 3 classes? If there will be 3 x 3 categories I will suggest the following combinations: H x H = H M x H = H H x M = H

M x M = M M x L = M L x M = M and L x L = L Otherwise my question is why: the combination of H x M = H and M x H results “only” in M ?

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