

Dear Dr. Thom Bogaard,

thank you. It is our pleasure to inform you, that we performed minor revision of our manuscript "New method for assessing the susceptibility of glacial lakes to outburst floods in the Cordillera Blanca, Peru" according to the comments and suggestions kindly provided by reviewer Dr. Martin Mergili. We fully agree with all of them. We made several changes, which are described in more detail below.

Best regards

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Dear Dr. Martin Mergili,

thank you for your constructive and thorough review for our manuscript “New method for assessing the susceptibility of glacial lakes to outburst floods in the Cordillera Blanca, Peru”. We agree with your comments and suggestions (see our responses below), which helped us to improve overall quality of the manuscript substantially. Please, find more detailed description of performed changes below.

General comments

- Maybe it should be emphasized even more clearly that the approach is a subjective one, even though it is reproducible and repeatable (see also specific comments below).

Response: Edited, this has been stressed in Chapter 2 (end of the second paragraph) and especially discussed in section 4.1.

- It is not mentioned which DEM with which pixel size is used. In my opinion, the maximum slopes which are employed in the equations are expected to depend on the DEM – this is an issue which has to be at least mentioned in the discussion.

Response: Agreed. Presented method is constructed to be used with DEM or topographical maps, but use of comprehensive and uniform input data is recommended (see also 4.3). For method verification, we did not use any DEM, but our own field measurements (where possible), previous measurements performed by Autoridad Nacional del Agua, and topographical maps of the Peruvian cadastral office 1:25 000 with basic contour interval 25 m (see section 3.2).

- It could be interesting to discuss at least shortly the applicability of the method to other mountain areas.

Response: Section 4.5 *Applicability in other regions* has been added.

Specific comments

1, 11 (and a few other places): if you refer to GLOFs (or other types of mass movements) in general you don't need the article “the” before

- edited through the whole text

1, 18: The use of decision trees does NOT limit subjectivity – these trees may be highly subjective, even though they make the approach repeatable and reproducible.

- edited

2, 24f: Maybe the higher number of reported GLOFs in recent years is also a consequence of an increased level of awareness and reporting?

- agreed, the word “recorded” was added into the sentence

3, 20: better: "... highly complex issue, ..."

- edited

4, 17: Also the method introduced in this paper is subjective: many of the equations do neither build on physical laws nor on statistically derived relationships, they are derived from the experience/opinion of the authors. However, the method is reproducible and repeatable.

- edited, this has been also stressed in the text (see above)

4, 28: "... cannot ever be completely eliminated ..."

-edited

5, 9f: The text in the bracket is very long, better reformulate the sentences.

- edited

6, 6: "... assessment of the ..."

- edited

6, 25 (and several other places): As far as I understand, "maximum" would be better than "maximal".

- edited and checked by native speaker

8, 25: Formatting of Lw has to be updated.

- edited

11, 23f: The last part of this sentence does not seem to be correct, please reformulate.

- edited

13, 28: What does "moraine dam x bedrock dam" mean?

- distinction between moraine-dammed and bedrock-dammed lakes; edited

17, 11: There are two sub-chapters named "Input data" (2.4 and 3.2) – either rename the title of 2.4 or merge the two subchapters.

- edited; section 2.4 has been renamed to "Required input data" and section 3.2 to "Input data used for method verification"

20, 1 (and some other places): "lakes which have yet to produce GLOFs" – better: "lakes which have not yet produced GLOFs"

- edited

20, 19 "... large lakes ..."

- edited

23, 19 and 27: *Instead of talking about advantages and disadvantages, I would suggest to use the terms “potentials” and “limitations”.*

- edited

24, 10f: *“... fluvial as well as geomorphological ...” – this is not correct as also fluvial processes are geomorphological processes. Better write: “... fluvial or fluvio-gravitational ...” or something comparable.*

- edited

Table 1: Horizontal lines separating the scenarios could be helpful to clearly assign the last two columns to the scenarios

- edited

Table 2: Lake perimeter: “connecting line”

- edited

Table 4: add the Scenario numbers to the column headers (Scenario 1, Scenario 2 etc.)

- edited

Captions of Figures 1-5: mention the Scenario numbers

- edited

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