Comment on hess-2022-110 - Anonymous Referee #1

General comment

Comment #1:

The manuscript has undergone a major change in contents and structure, resulting in a much more focussed and clearly written article. It will make a valuable contribution to the body of literature. Many of my comments on the original manuscript have been sufficiently addressed, though there are still some minor issues (see my specific comments). In the following, I will use the line number of clean texts to refer to specific locations in the texts.

Answer #1:

We thank again the reviewer for his previous comments which largely contributed to improve this manuscript and for taking the time to go through our manuscript a second time and for his positive feedback. In the following, we will reply to the remaining comments. All changes can be checked in the track-changes pdf version of the document.

SPECIFIC COMMENTS

Comment #2:

Title. Most readers of the journal will be unfamiliar with the Otemma catchment. Please add ', Switzerland' at the end, or change it back to 'an Alpine catchment'.

Answer #2:

Thanks for this suggestion, we changed it to the more general "Alpine catchment".

Comment #3:

Line 43. 'Prone to' is not a correct word for the intention. I suggest changing it to 'that have high groundwater storage potential'.

Answer #3:

Thanks, we changed it as suggested.

Comment #4:

Figure 1. Please change the colour of the glacier to distinguish it from water bodies.

Answer #4:

We updated the color of the glacier in Fig.1. We consequently also updated the color of the glacier in Fig.14 to be consistent.

Comment #5:

Line 89. Experimental methods. Most of the methods are for observations, not experiments. I suggest changing it to 'field methods'.

Answer #5:

Yes, thanks you, we changed it to field methods.

Comment #6:

Line 95. Please spell out the acronym in the reference list.

Answer #6:

We updated the bibliography.

Comment #7:

Line 100. Please add the citation of this data source to the reference list.

Answer #7:

We added this in the bibliography.

Comment #8:

Line 108. This sentence is written in a wrong tense. If it describes an event in the past (we installed…), then the sentence should start with 'In July 2019'. If it describes events that have been taking place since July 2019, then the present perfect tense should be used. The same applies to Lines 110 and 120.

Answer #8:

Thank you for this notice. We corrected the tense where needed in the whole document.

Comment #9:

Line 121. See zoom-in. Please label the two maps in Figure 2 as (a) and (b), and refer to them as Figure 2a and 2b.

Answer #9:

We updated the figure and text as suggested by the reviewer

Comment #10:

Line 132. 21 lines. Please show them in Figure 2.

Answer #10:

We attempted to add this information in the Figure, although the scale is relatively small. In addition, we added a sentence to direct the reader towards which is already provided in Zenodo with a better view (https://zenodo.org/record/6342767/files/0_ERT_map_lines_2019-2021.jpg?download=1).

Comment #11:

Line 133. Dipole-Dipole. This is not a proper noun. Please spell it as dipole-dipole.

Answer #11:

Updated, thank you !

Comment #12:

Line 135. This sentence is vague. Please explain more specifically what kind of optimization method was used (e.g., L1-norm) and why.

Answer #12:

We added some more specific information (robust inversion, regularization strength). We also more specifically indicated that all data, results and codes are available on Zenodo.

Comment #13:

Line 136. Measured. Please change this to 'estimated'. Geophysical methods like ERT do not actually measure the depth.

Answer #13:

Yes it is indeed an estimation. It is now corrected in a few location in the text.

Comment #14:

Line 140. Field methods have been described in Section 2. I suggest changing this to 'Data analysis' or 'Data analysis methods'.

Answer #14:

We changed it to "Data analysis methods". Thank you.

Comment #15:

Line 233. Orthoimage. Please cite the data source here, not later in Line 275.

Answer #15:

We added the reference in the bibliography.

Comment #16:

Line 234. Please add the citation for Swisstopo. International readers will be unfamiliar with this product.

Answer #16:

We added the reference in the bibliography.

Comment #17:

Line 295-296. Hardly any change. I would say there is a small but consistent decrease in EC from GS2 to GS3. Please rephrase this sentence.

Answer #17:

Yes we rephrased this along with comment #18.

Comment #18:

Line 298. A small EC difference. It is interesting to note that the EC increase from GS2 to GS3, opposite of the EC change during high flow periods. What causes the switch?

Answer #18:

Yes this is indeed some interesting remarks which we briefly discuss in the discussion. We added two sentences to highlight and explain the likely phenomenon causing this observed behavior. Thank you for this remark, this will help the reader to get a clearer understanding of the processes.

Comment #19:

Line 302. Please be mindful of the number of significant digits.

Answer #19:

We rounded every average to the first digit.

Comment #20:

Line 318-319. Stream water – groundwater exchange. Please be more specific. Does this refer to infiltration (recharge) or exfiltration (discharge)?

Answer #20:

Yes, we corrected this.

Comment #21:

Line 340. Opposite direction. Opposite to what? Please specify.

Answer #21:

We corrected this.