Detailed comments to the paper
"Water flow timing, quantity, and sources in a fractured high mountain permafrost rock wall*"*
by Matan Ben-Asher, Antoine Chabas, Jean-Yves Josnin, Josué Bock, Emmanuel Malet, Amaël Poulain, Yves Perrette, and Florence Magnin

<u>*Moderate comments.*</u>
1. *Introduction. While the introduction section is quite detailed and includes relevant references, I think it lacks a clear and detailed statement of the focus of the paper. For example, the Mont Blanc Massif area is mentioned at lines 85-89. However, it is not clear at this point that this will be the study area. I suggest expanding lines 85-93 and clearly state here the objectives of the work and the study area. Additionally, this paragraph should include a description of the structure of the rest of the paper, highlighting what is included in sections 2-6.*
2. *Lines 260-274. This paragraph is not very clear. I suggest defining the temporal lag from a mathematical standpoint instead of giving examples (i.e., "at a lag time of +6 h, the flow series was correlated with the AT series shifted forward by 6 h"). I suggest including some references to support the use of such cross-correlation analysis based on Pearson Correlation Coefficient. Before the cross-correlation analysis, data are filtered to remove high-frequency noise (lines 272-274). The moving average window size is set as 1h, i.e., it coincides with the minimum temporal lag. How does this smoothing impact on the results? Why do you set a threshold on the maximum flow rate to select days included in this analysis (line 273)?*
3. *Lines 585-603. These lines list your main findings. Otherwise, key points included in the Discussion section are not exhaustively summarized here. I suggest restructuring this part of the Conclusions, including the interpretation of the experimental results and maybe reducing the total number of bullet points for the sake of clarity.*

<u>*Minor comments.*</u>
1. *Line 126. The reference to "Figure 2" is repeated twice in the sentence.*
2. *Line 136. "Lines" should be "lines".*
3. *Figure 3, legend. Acid Amino-G should be Amino Acid G.*
4. *Line 161. There is an extra "the" before 11 May 2022.*
5. *Line 167. Missing reference.*
6. *Line 199. There is a missing space after the comma and an extra space before it (should be "weekly,").*
7. *Line 210. What do you mean by "sampled occasionally"? Specify the actual sampling frequency.*
8. *Line 215. Specify excitation and emission wavelength used for detection of fluorescence signal.*
9. *Line 227. Are data linearly interpolated? Please specify for clarity.*
10. *Line 253. What do you mean by "flow characteristics"?*
11. *Line 303. Specify "iButtons temperature sensors".*
12. *Line 305,306. There is a typo: "Sulphorodamine-B".*
13. *Line 353. There is a typo: missing space between "significant" and "insulating".*
14. *Line 354. There is a typo: missing comma after "i.e.".*
15. *Line 356. The reference to Figure 5 is repeated twice in the same sentence.*
16. *Line 378. There is an extra "the" before "24 June".*
17. *Supplementary. Consider reducing fonts of figure titles.*