14th March 2025

Dear Editor,

Thank you for your comments and handling the review process of our manuscript.
Please find below the changes that we made to the manuscript in response to the reviewers' comments. We refer to the responses to the reviewers' comments for more extensive answers to the review comments. In short, we have made all the changes that we promised to make during the discussion phase of the review process. In addition, we fixed some unclarities in the text and minor mistakes that we found in the previous version of the manuscript. None of these additional changes affect the conclusions of the work.

reviewer #1 comments

Reference to climate change in lines 72-73 is not needed, the topic is interesting in itself.

> We have removed these sentences.

l. 270 - I did not find figure S4 in the Supplement

> We have fixed this in the revised version of the manuscript and double checked all references to figure numbers. In addition, we have changed the supplementary materials so that it first shows all the tables and then all the figures. This will make it easier to find a specific figure.

l. 310 - mentions relations with TWI and local slope. It might be good to note that TWI considers slope as well.

> We agree and have added explanation to the revised manuscript (l.310).

Fig. 5 shows that that there was quite a lot of "No data" for events with ASI+P smaller than approximately 38 mm. Could that have an influence on the interpretation of results?

> We now explicitly point out that we only have data for a small number of plots for the small events (l.327), that these are mainly the forested plots with moss cover, and that this may have influenced the correlations somewhat.

l. 337 - Is it possible to say why was namely event on August 30 chosen? Fig. S8 shows that there two events with total precipitation of 20 mm with enough data recorded. Is it possible/useful to comment on similarities/differences (and their probable reasons) of runoff ratios at the same plots during those two events?

> It was just an example event for which we recorded flow for a large number of plots. We have added a figure for another similar event to the supplementary materials and refer to it in the text (l.345).

For the consistency with the main text it would be better to write figure captions in the Supplement below the figures as well.

> We did this and also made sure that all the tables have the same format. In addition, we have moved all the tables to the beginning of the document and the figures to the end, so that it is easier to find a specific figure.

reviewer #2 comments

This study used hydrological measurement network consisting of 14 small 60 runoff plots (1 m x 3 m) across the 20 ha Studibach catchment in the Alptal, Switzerland to analyze the occurrence of OF and TIF, their controlling factors and threshold. One of the major concerns is that at plot-scale, soil properties mainly governs the runoff dynamics, however, this study didn't discuss role of soil characteristics (texture, hydraulic conductivity and parameters of soil water retention curve) in explaining variation of OF and TIF.

> We have added some discussion (l.313) on the correlations with the soil properties to the revised manuscript and additional tables to the supplementary material.

Further, It is not very clear how TIF was measured in the field. Please explain it.

> We have updated the manuscript (l.133) to point out that it was TIF (subsurface flow through the topsoil) that was collected. Additionally, we have added a schematic figure to the supplementary material that shows the monitoring setup.

Line 194: On what basis authors divided the low-, medium-, and high- intensity rainfall ranges.

> We have added some explications in the manuscript (l.197-201) to make this clearer in the revised version of the manuscript and refer to the Meteoswiss classification.

Topsoil interflow (TIF): at what depth TIF takes place?

> We have added a better description on how we collected TIF and highlight the depth of TIF occurrence more clearly as well (l.135). Additionally, we have added a figure in the supplementary material.

Line 435: "Indeed, the Spearman rank analysis indicates that ROF was negatively correlated to ASI for plots with a low TWI and positively correlated for plots with a high TWI (Figure S5)": what would be the possible reason?

> We have added details about the mechanisms in the manuscript (l.443) to make this clearer.

Line 490: The fast response of both flow pathways highlights the importance of preferential flow and suggests considerable interaction between OF and TIF. How the fast response of OF highlights the importance of preferential flow.

> We have added information (l.471) in the revised manuscript and give a few more details.

Add legend titles to Figures 2 and 3.

> We have added the legend titles in the new version of the manuscript.

Add legend titles to Figures S8 and S9.

> We have added the legend titles in the new version of the manuscript.