

Dear Anonymous Referee #1

We would like to thank you for reviewing our manuscript, for your comments and suggestions, and for pointing out some minor mistakes. These comments help us to improve the manuscript. We respond to the individual comments in blue font below.

I believe that this study will be interesting to many readers. The research was very well designed. It documented considerable variability in runoff response. The manuscript provides clear and detailed information for the readers to understand the results and make their own interpretation/conclusions.

Thank you for these kind words and for valuing our study.

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

Indeed, climate changes is not the topic of the manuscript. We wanted to point that changes in rainfall patterns may lead to changes in the frequency of overland flow and the importance of near surface flow pathways for runoff generation but we will remove these sentences.

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

Thank you for spotting this. We referred to Figures S4 and S5 but should have referred to Figures S8 and S9. We will fix this in the revised version of the manuscript and double check all references to figure numbers. In addition, we will change the supplement 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.

That is correct and we will add this explanation. However, note that the TWI was calculated by Rinderer et al. (2014) based on a smoothed DEM, while the slope mentioned here is the local slope for the plot measured in the field. These two are not the same because they are based on different data.

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?

Indeed, there is a lot of no data for the small events (with ASI+P smaller than 38 mm) in this figure. This is partly due to the lack of data due to sensor failures for some plots for some events but the main reason is that for these smaller events there was often no flow for OF and for TIF (see Figure 3). As a result, the importance of OF for total near surface flow could not be determined (i.e., the fraction would be 0/0). This is indicated in Figure 5 as no data. We will update the legend of Figure 5 to highlight that the hashed lines indicate no flow or no data. Alternatively, we can try to use different hashed lines for no data and for no flow. If there was OF but no TIF, it is shown as 100% OF, and vice versa as 0% OF.

We will explicitly point out that we only have data for a small number of plots for the small events in the text, that these are mainly the forested plots with moss, and that

this may have influenced the correlations somewhat. However, overall, the lack of data for these types of events mainly reflects the threshold response for most plots.

1. 337 - Is it possible to say why was namely event on August 30 chosen? Fig. S8 shows that there were 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?

This event was chosen for several reasons: a) we had data and measured flow for most plots, b) it is a medium sized event that is quite common for the Studibach, and c) there were two clear rainfall peaks during the event, which are interesting to observe. We made a similar figure for event E22 on the 14th of September 2022. This is a 20 mm event with relatively wet antecedent conditions (ASI+P = 42 mm). We will add this figure to the supplementary materials and refer to it in the text.

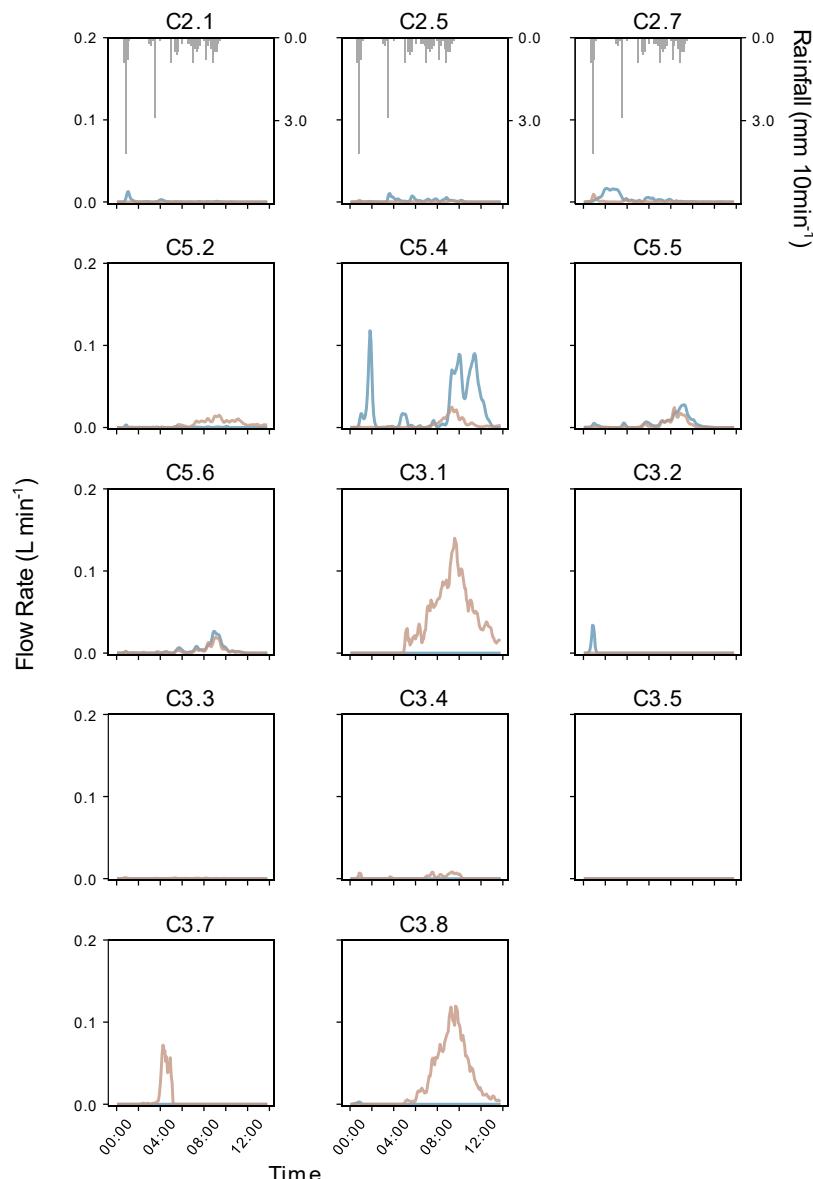


Figure S10: Hydrographs for overland (OF; blue) and topsoil interflow (TIF; brown) for each plot during the 20 mm event on 14th September 2022 (event E22), as well as precipitation intensity (mm per 10 min);

only shown for the upper row of figures). The plot name is indicated above each subplot. All loggers recorded data during the event, but for many plots there was either no flow or a very small flow rate, which appears as a horizontal line at zero.

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

We will do this and also make sure that all the tables have the same format. In addition, we will move 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.