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Discussions
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Interactive comment on "The effects of climatic anomalies on low flows in Switzerland" *by* Marius G. Floriancic et al.

Anonymous Referee #1

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Floriancic et al. explore how anomalies in precipitation and potential evapotranspiration shape the occurrence and magnitude of annual low flows across 380 Swiss catchments. The varying time period for the precip and PET anomaly calculation, with the end point being the day of the low flow, is a novel method for completing the joint analysis of climate drivers on annual low flows. I found the conclusions to be well-supported by the data. I particularly like how Figure 6 illustrates the role of long periods of PET in development of extreme low flows. The paper is well-written, and the methods are clearly outlined.

I find this manuscript to be a significant contribution to the field, and I recommend it for publication in HESS. I have the following few minor/technical comments that should be easy to address:

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Abstract L28: Most of the paper focuses on warm-season low flows, and the authors posit that precip and PET anomalies are “relatively unimportant” on winter low flows. Based on this statement, I suggest removing the reference to winter low flows on this line, since they are not jointly shaped by precip and PET.

L100: change “There were years whose lowest” to “There were years when the lowest”

L140-142: Sentence starting with “However,” incorrect figure reference at end of sentence – should be Fig. 2a&b.

Figure 4: Suggest changing the color-scheme to something that is color-blind friendly.

L308-311: Based on the winter precipitation versus annual low flow analysis completed in this study, I don’t think this statement is sufficiently supported. As stated earlier in the paragraph, winter precipitation does not always accurately represent SWE. With such a range of catchment elevations (and thus climate conditions), a more detailed analysis would be needed to determine the impact of SWE on summer low flows.

L314: “most work has discussed individual drivers” – statement suggests that some work has analyzed multiple drivers of low flows, but no studies are referenced here. Section should reference the relevant studies listed in the introduction on L68-70.

L319-321: I struggled to directly relate these broader implications statements to the results. How will the impacts be different between spring and autumn? What are the different implications of PET anomalies in May versus September? These implications are likely obvious to the authors, but on the first read through – I did not make the connection.

L350: Data availability – Rather than making the data available “upon request”, I would encourage the authors to provide open access to the compiled data used in their analysis (streamflow, catchment-averaged weather and climate conditions, PET, etc.) through an archiving medium such as figshare.com. While not essential, it would be beneficial.

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