Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2021-93

Anonymous Referee #2

Referee comment on "A climatology of sub-seasonal temporal clustering of extreme precipitation in Switzerland and its links to extreme discharge" by Alexandre Tuel and Olivia Martius, Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-93-RC2, 2021

General comments :

The article studies the temporal clustering of extreme precipitation in Switzerland and its link with the occurrence of persistent heavy discharge in 93 catchments. The article is interesting, however I didn't get several methodological points that prevented me from taking full benefit of the study :

- I didn't get how the cluster events are identified (section 2.2.2). The authors cite Kopp et al 2021, which I looked at, but actually I still don't fully get it. Anyway this is an important variable of the study and I think the article should be self-sufficient

- I got confused with the analysis of flood days : how is it possible to get 5 days exceeding the 99th quantile within 10 days (Figure 9) ? This is very unlikely : there are on average 3.65 excedances per year.

Finally there are many figures for a quite short article. Some figures are little commented (e.g. those of section 3.3) and perhaps they could be omitted to make it more concise (not mandatory) .

Detailed comments :

- title : « impacts » is confusing because it relates to social sciences

- l 38 and others: Tuel and Martius 2021 is in review so I coulnd't check

- l 111 : please consider explaining the declustering procedure (and its goal) in short

- l 124 : « at least half of the n values » : is it the same « n » as the window siez above ? (I don't think so). Do you consider all time scales between e.g. 5-15 days ? (i.e. 5, 6, 7, … , 15 days)

- all of section 2.2.2 : unclear to me even with Kopp et al. Please clarify.

- section 2.2.3 « flood days » may be confusing ☐ heavy discharge days ?

- l 138 : I guess (L,N) should be (N,L)

- l 141 : please add a subsection here

- l 148 « This seasonality… end of paragraph ☐ please consider moving it into the discusion section

- l 160 : « floods are rare » : it's actually hard to tell because the color scales are different in Figs 2 and 3. Please consider merging these two figures and using the same color range.

- section 3.2 : I missed it because I didn't get the definition of clusters

- l 227 : « not very different between clustered and non-clustered extremes » : actually the y-scales are different and we can read quite different values for the two cases (about 0.7 vs 0.4). Please consider using the same y-scale.

- l 267 : « runoff regime » : please clarify

Minor :

- l 61 : brackets

- l 81 : 63 ☐ 93

- l 82 : smooth

- l 104 : as as

- l 105 « all-day percentiles » : confusing to me all-day // monthly

- l 160 « floods » ☐ please specify « in Jura »

- l 240 : IVT acronym

- l 263 flood risk ☐ hazard

- Fig 1 : please locate Ticino, Jura, … (also all the Swiss maps are elongated)

- Fig 2 , 3: please specify the seasons a,b,c,d