Comment on nhecc-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 exceedances 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 couldn’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 size 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 discussion 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