

Interactive comment on “Inference of analytical flow duration curves in Swiss alpine environments” by Ana Clara Santos et al.

Anonymous Referee #2

Received and published: 30 September 2017

The paper deals with a series of catchments in Switzerland with various geospatial and climatic characteristics. The authors compared the performance of linear against nonlinear stochastic model and found out that nonlinear one outperforms. The general idea would be interesting to the hydrology community, however, it needs to be more developed. Moreover, since the paper is going to be studied by a wide range of people, it is needed to explain some concepts and parameters with more details and better referencing.

The paper is not well-organized and contains technical and language problems which decrease the scientific credibility of this study although technically it has relatively convincing results. I recommend accepting it, revising it with MAJOR revision. There are some points which the authors need to address before publishing this paper:

C1

- 1- More attention to results and conclusion parts is needed in the abstract.
- 2- In the introduction part, very old papers are cited which is necessary to show the history of the used method, however, the number of recently published references are very low and they repeated all over the paper. It is strongly suggested to use more updated references in the paper.
- 3- It is expected to mention more clearly what are the benefits of this method against others which you decided to use it for the current study.
- 4- It is very important to compare your results with other studies to show all aspects of your findings relative to others. It can reveal the novelty of your work. In the discussion part, there is no comparison of such type. It is strongly suggested to compare the results with similar studies.
- 5- It is needed to address data sources very clearly and describe exactly how you have used your data.
- 6- Since not all the readers are familiar with mentioned comparative methods, explain in more details what Kolmogorov-Smirnov and Akaike methods are and try to cite to studies which used the same criteria for comparison among models.
- 7- Although the results are interesting, but they need more discussion to appropriately describe the new findings.
- 8- How do you justify if for a specific year, a part of discharge was related to the melt of the ice from the other year precipitation. How is distinguished? Does it have any effect on your results?

There are many points which highly need rephrasing and corrections, mainly grammatical and language issues. Moreover, it can be seen that the used language in some parts is very similar to conversation rather than a scientific text which causes ambiguity in the text. It is strongly recommended to highly take care of this issue.

C2

*** The discussion and conclusion parts need a complete rephrasing. Therefore I am not going to mention them in Line-by-Line comments part.

Please find the Line-by-line Comments (More rephrasing is expected than mentioned comments):

P.1, L. 12-13: Rephrase the sentence, it is better not to use “about” 2 times.

P.1, L. 14-15: Change “rather than of the . . .”

P.2, L. 1: Use exist(s)

P.2, L. 6 is not clear. Rephrase the sentence.

P.2, L. 17: what do you mean by model development time? It needs more explanation.

P.2, L. 23-26: Use 2 references in a single sentence in such a way is a little strange. Moreover, a sentences is copied from other publication. Try to rephrase the sentence.

P.2, L. 27-33: The paragraph contains just a very long sentence. Try to break it down to several sentences.

P.3, L. 3-14: The first two paragraphs needs rephrasing. More academic language is needed.

P.3, L. 17: 41.285km² change it to 41,285 Km² (using “.” Is not right, moreover, 2 should be in the power.”

P.3, L. 17-18: Most of the sentences are like conversations than academic paper language. They need rephrasing.

P.3, L. 20 and P.3, L23-24: The same exact sentence is repeated which shows that the text is not checked carefully before submitting.

P.4, L. 18: What do you mean by “sequence of subsurface inputs”? Explain more.

P.5, L. 26: Remove “In this work”.

C3

P.6., L.1: Use “among” instead of “between”.

P.6., L.1: Use comma “,” after the parenthesis.

P.6, L.17: Rephrase the sentence in parenthesis.

P.6, L.22: above equation is equation number 7. Therefore in the next line what is the correct equation number? It seems that the orders is not right.

P.6, L.23: Use “was” instead of “is”.

P.6, L.27: Use “models” instead of “model”.

P.7, L.5: What is the purpose of “here” in this sentence?

P.7, L.7: mention what is the limitation?

P.7, L. 19: use “to assess” and remove “we propose here. It needs rephrasing.

P.7, L.24-25: sentence needs rephrasing.

P.7, L.28: for the first time, mention what “a.m.s.l.” means

P.8. Last line: briefly mention what are the “supplementary information” and how they can be found?

P.9, L. 14-15: needs rephrasing.

P.9, L. 30-31: rephrase “that states that”.

P.10, L. 19: this suggest(S)

P.10, L. 25-26: It is not possible to understand your result.

P.11, L. 3-5: needs rephrasing

TABLES:

Table1.

C4

1. There are two columns with the names “Regimes” it is not acceptable.
2. It needs rows number in the first column to quickly and easily find out how many catchments are in the table
3. What are the coordinates? It is not possible to extract any information from this column.

Table2.

1. The caption is not appropriate. Try to mention exactly what this table is supposed to describe in an organized pattern.

FIGURES:

1. Figure 2 does not have vertical axis title
2. Figure 4 caption needs more detail. Precipitation frequency is mentioned in the caption but it is not in the figures. Pay attention that a figure, without the text, should be understandable.
3. Figure 6 caption needs rephrasing
4. Figure 9. It is better to show some trends inside the graph.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-349>, 2017.