

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
<https://doi.org/10.5194/hess-2021-229-RC2>, 2021
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Comment on hess-2021-229

Anonymous Referee #2

Referee comment on "Applying non-parametric Bayesian networks to estimate maximum daily river discharge: potential and challenges" by Elisa Ragno et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-229-RC2>, 2021

This manuscript explores the application of a Non-Parametric Bayesian Network to estimate monthly maximum river discharge and its potentiality and challenges. The topic is important and would be of great interest to the readers of this field and falls within the scope of HESS. The paper has many grammatical errors and needs lots of editing. I did some of them in the abstract section, but it is not the role of reviewers to edit the full manuscript. The paper is not well organized. This reviewer wants to re-review the article after consideration given to the comments listed below.

- The authors ought to re-write the abstract so that it briefly presents the problem at hand, objectives of the study, methods used to achieve the objectives in a logical order before presenting a summary of major results and conclusions drawn from the study.
- The introduction of the manuscript was very poorly written. The reason why you carried out this study does not seem to justify a publication. Try to highlight the regional or national significance of this study, especially since a lot of similar work has been done.
- The authors should also discuss other algorithms previously used by other researchers to predict the monthly maximum river discharge in the introduction section and explain why only NPBN were chosen for this study?
- Highlight the key points of the paper, the innovative part of your work. What differentiates it from other works? Why should the journal publish it?
- The quality of the figures should be improved.
- Make your conclusion more clear and simplified. Highlight your important result or findings.
- Remove unnecessary "the" from the manuscript.

Specific comments:

Abstract:

In line 4 authors wrote UN and SN networks, and then in line 8, they said UN and SN models. Is there any difference between these two? If not, then please use only one for uniformity in the manuscript. P1 L2: "However, few hydrological applications can be found in the literature." This sentence doesn't fit after the prior sentence.

P1 L2: Change "We therefore" to "We, therefore,"

P1 L4: Write the full form of CAMELS first before using its abbreviation.

P1 L4: Change "one saturated" to "one saturated network"

P1 L6: What is SN-C?

P1 L6: Delete "but additionally"

P1 L8: Change "the attributes similarity" to "the similarity of the attributes"

P1 L10: Use "," after "analysed"

P1 L14: Use "," after "catchments"

P1 L15: Remove "," before "once"

P1 L15: Remove "," after "discharge"

P1 L16: Change "Despite these advantages, the result also suggest that there are considerable challenges in defining a suitable NPN, in particular for predictions in ungauged basins." to "Despite these advantages, the result also suggests considerable challenges in defining a suitable NPN, particularly for predictions in ungauged basins."

Please make these changes in the abstract section and revise the whole manuscript for other English grammar and typing errors.