

***Interactive comment on “Exploring the physical controls of regional patterns of flow duration curves – Part 3: A catchment classification system based on seasonality and runoff regime” by E. Coopersmith et al.***

**Anonymous Referee #1**

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Review of the paper entitled Exploring the physical controls of regional patterns of flow duration curves – Part 3: A catchment classification system based on seasonality and runoff regime by E. Coopersmith, M. Yaeger, S. Ye, L. Cheng, and M. Sivapalan

This paper is the 3rd on the series of four. This implies that there is a lot of information to ingest in order to be able to follow up. This is only possible if each paper in the series is as short as possible, focusing on one very precise topic, the fourth paper being available for more philosophical analyses.

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As far as I understand, this is what the authors wanted to do, but unfortunately, this is not what they have done. This is why I recommend a complete rewriting & shortening of the series of paper.

More specifically on this paper, I must say that I don't really understand why the authors want to classify: if their aim is to classify in order to understand what conditions the hydrological regime, they should make a separate classification for physio-climatic descriptors and for hydrologic descriptors, and then study the overlapping of both classifications. Or classify on a physio-climatic basis and then investigate the possibilities to transfer regime curves from one catchment to the other in each category.

I feel that the authors have jumped too fast to their classification algorithm, and forgotten to take their reader with them.

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