

## ***Interactive comment on “Carbon and nutrient export regimes from headwater catchments to downstream reaches” by Rémi Dupas et al.***

### **Anonymous Referee #2**

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In the submitted paper Dupas et al present an experimental study that uses sampling of C, N and P in a set of 5, partially nested, catchments in Germany. 3 of the catchments were headwater catchments with different properties and land use. By their monitoring scheme, the authors could investigate their C, N and P export regime. Using the downstream signals of the three hydrochemical variables at the 3 larger catchments, the authors could infer about in-stream processes and contribution of point-source emissions. By contrasting of the three solutes the authors could identify an interplay between hydrological and biogeochemical processes that would have remained hidden if only the headwaters were investigated.

Overall, the study is well written, structured and concise. The authors provide detailed insight into the behaviour of the 5 catchments in the hydrological and biogeochem-

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ical processes. Their interpretations are mostly clear and supported by conceptual sketches of the system behaviour at different hydrological states.

For those reasons I recommend the paper for publication at Biogeosciences with minor revisions after my initial review. In this second review, I found that, except for a few specific remarks, most of my previous recommendations were not addressed. So I still think that

1. Some structural issues have to be resolved: parts of the site description already appear in introduction and some interpretations are already made in the results section.
2. At some point a table with an overview of attributes of the 5 catchments might help to improve the site description and a flow chart elaborating the methodological flow might improve the elaboration of the general scope of the methodology
3. The first two subsection of the discussion are a bit long and could use some more reference to the work of others. In contrary to that subsection 4.3 and 4.4 are very valuable as they describe possible implications and limitations of this work.

Please find again some more specific remarks in the attached pdf (and please ignore the comments that were already addressed after the initial review).

Please also note the supplement to this comment:

<https://www.biogeosciences-discuss.net/bg-2017-82/bg-2017-82-RC1-supplement.pdf>

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