

Editor decision

HSSD-Manuscript “**Drivers of nitrogen and phosphorus dynamics in a groundwater-fed urban catchment revealed by high frequency monitoring**” (HESS 2020-34).

Dear Dr. Liang Yu

Thanks for submitting the responses to the three reviews and the extensive material provided. You have properly addressed most of the comments. Nevertheless, there are still a few issues where further revision are needed. I listed them below.

**Reviewer 1, comment 41: Definition of wet and dry periods:** You have only partially addressed this comment. It is now clear how you have defined the wet and dry periods in an operational manner. However, as pointed out by Reviewer 1, this operational definition puts the end of the wet season at about mid March 2017 and not simply at the of February. Actually, inspecting the EC data in Fig. 2 nicely illustrates that the operational definitions captures the change points in the temporal evolution. However, the current version mixes an operational, data-driven definition of the period with a calendar-based one. Please rectify this issue such that the periods are delimited in a consistent manner.

**Reviewer 2, comment 7:** There are several linguistic shortcomings in the suggested text. Please carefully check the language (spell check, grammar).

**Reviewer 3, general comment:** Reviewer 3 was critical about the lack of statistical analyses. The same opinion was expressed by Reviewer 1 although he did not insist that much on that aspect. In your response, one reads ‘*We are not sure that statistical testing is the best approach in dealing with a complex dataset with high-frequency data.*’. Can you elaborate what you consider a more promising approach, how it is implemented in the manuscript and where you explain this to the reader?

**Reviewer 3, major comment 3:** Is the information provided in the response included in the main text and the figures shown in the SI? If not, please do so.

**Reviewer 3, major comment 7:** Please provide more information about your statistical analysis. Was there a significant difference between the two periods? Do the data fall into two clusters? Otherwise the split would be arbitrary. Show data (SI).

**Reviewer 3, major comment 13:** Unless there is a scientific reason not to perform a statistical test, please provide this information. Even if you think that the differences were evident enough, this is no argument not to

support this view by a statistical test.

Figure S4 is poorly explained. What is exactly depicted? What is an ‘... *increase in variations over the day.*’? One cannot see any sub-daily fluctuations. What are ‘*difference between daily values*’? One can only guess. Please be more precise and specific.

**Reviewer 3, major comment 30:** Unless there is a scientific reason not to perform a statistical test, please provide this information. Even if you think that the differences were evident enough, this is no argument not to support this view by a statistical test.

Please modify the manuscript as suggested and address the issues listed above.

Sincerely

Christian Stamm