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Interactive comment on "Longitudinal discontinuities in riverine greenhouse gas dynamics generated by dams and urban wastewater" *by* Hyojin Jin et al.

Anonymous Referee #1

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The manuscript bg-2018-278 by Jin et collaborators explores Vannote′s (1980) river continuum concept in the light of river damming and urban effluents. The dataset is consistent and the statistical approaches (nonparametric tests) seem appropriate. Nevertheless, I would recommend replacing the fitting (R^2, p-value) by discriminant/cluster analyses. There is no physical meaning in R^2 values that, despite the $p<0.001$, evidence weak correlations (coefficients of determination $\sim<50\%$). Those plots are more suitable for discriminating spatial variability than fitting meaningless polynomials. On the other hand, the authors should also consider references for broadening the systemic understanding of the focused problem. I recommend to the authors to: 1) Explore/discuss your data un-

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der the Riverine Ecosystem Synthesis (Thorp, J.H., J.E. Flotemersch, M.D. Delong, A.F. Casper, M.C. Thoms, F. Ballantyne, B.S. Williams, B.J. O'Neill, C.S. Haase. 2010. Linking Ecosystem Services, Rehabilitation, and River Hydrogeomorphology. BioScience 59(1): 67-74. https://doi.org/10.1525/bio.2010.60.1.11), which extends the river continuum approach with the flood pulse and space-time scaling; 2) Explore/discuss your data under the ecohydrology perspective (Bergier, I., Ramos, F.M. & Bambace, L.A.W. Environ Monit Assess (2014) 186: 5985. https://doi.org/10.1007/s10661-014-3834-2) that regards the land-use in the landscape as fueling GHG emissions; and 3) Finally, also consider the study provided in Abe et al (2009) (https://www.tandfonline.com/doi/abs/10.1080/03680770.2009.11902248) regarding wastewater, algal bloom and GHG emissions from dams.