Interactive comment on "Technical note: Long-term memory loss of urban streams as a metric for catchment classification" by Dusan Jovanovic et al.

Dusan Jovanovic et al.

dusan.d.jovanovic@gmail.com

We thank Dr Montanari for the thorough review of the manuscript, and the encouraging comments and suggestions for its improvement. Two main points were raised by Dr Montanari: 1) The use of the H-exponent as a metric to determine the role of urbanization on streamflow implies the assumption that all natural catchments show long term memory. This might be not true and, perhaps, the lag-1 autocorrelation coefficient could be a better candidate for the same analysis. 2) The values of the H-exponent larger than 1 need to be interpreted and explained. Very likely, they are due to estimation uncertainties. The discussion of this point required to be strengthen in the

manuscript. In relation to the first issue, we will expand the discussion about the use of H exponent and will repeat the analysis with the lag-1 autocorrelation coefficient to test the hypothesis suggested. If these new results provide substantial contributions to the study, we will expand the manuscript to include also the lag-1 autocorrelation coefficient in the analysis. This might also help with the series having long gaps of consecutive days. For the second point, we will explore the causes leading to values of H larger than 1 obtained with the MF-DFA. We agree with Dr Montanari that these could be caused to estimation uncertainties; a discussion on this issue will be included in the revised manuscript. All minor comments related to simple corrections of the text will be addressed in the revised manuscript. Minor comment 3) criticizes the deseasonalisation method we used. Because this issue was already raised during the review process of the paper by Jovanovic et al. (2017), they compared several deseasonalisation methods for the same 22 streamflow time series in the USA; this led to very similar results. Therefore, due to previous findings and the scope of this technical note, we will not perform any additional analysis, and provide a stronger justification of the deseasonalisation method used.

References: Jovanovic, T., García, S., Gall, H. and Mejía, A., 2017. Complexity as a streamflow metric of hydrologic alteration. Stochastic Environmental Research and Risk Assessment, 31(8), pp.2107-2119.