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Reply on CC1

Samuel Schroers et al.

Author comment on "Morphological controls on Hortonian surface runoff: An interpretation of steady-state energy patterns, maximum power states and dissipation regimes within a thermodynamic framework" by Samuel Schroers et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-479-AC4>, 2021

We thank JD for his comments on our manuscript. The purpose of this study is an evaluation of energy patterns during steady state runoff. While transient floods and runoff are certainly dominant in nature, design of experiments for parameter estimation often departs from a steady state assumption. The results shown in Fig. 10(c) and (d) represent therefore merely the temporal routes of hydraulic variables for reaching a steady state runoff regime and an analysis of the latter, not the routes themselves. However, as mentioned in our previous reply (AC3) to KB's comment (RC2), we agree that a further study should incorporate temporal patterns.

This study presents therefore just a first step towards an analysis covering distribution of the energy residual in space and time, where we will of course consider JD's comments on transient dissipation regimes.