

Nonlin. Processes Geophys. Discuss., author comment AC1
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Reply on CC1

Allen Hunt et al.

Author comment on "Non-linear hydrologic organization" by Allen Hunt et al., Nonlin. Processes Geophys. Discuss., <https://doi.org/10.5194/npg-2021-4-AC1>, 2021

Thank you, Dr. Seybold for your comment. Relevant here is that a follow-up manuscript has been submitted to a geomorphology journal that more than doubles the number of drainage basins addressed, although it focuses more on the predictive capabilities of the scaling equation for integrated river length. Accordingly, we located data describing long-term regional subsurface flow rates in the southwestern USA for the Mojave and Gila river drainage systems and compared with the best descriptions for their step-by-step integration, finding good agreement (discrepancies between 10% and 40%). The USGS also published a descriptive summary of regional subsurface flow rates across climate regimes with values a little higher than what we used here (0.4m/yr to 100m/yr, rather than our 0.2m/yr to 20m/yr). The USGS rates provide almost exactly the upper and lower limits on the data for river drainage organization overall, both in the new manuscript and for the drainages considered here.