

Interactive comment on “Expansion and contraction of the flowing stream network changes hillslope flowpath lengths and the shape of the travel time distribution” by H. J. Ilja van Meerveld et al.

Anonymous Referee #2

Received and published: 16 August 2019

General Comments: This manuscript uses field-mapped stream extent and flow-routing from a digital elevation model to derive travel time distributions considering varying extents of the flowing stream network. The dynamic expansion and contraction of the stream network is not typically considered in this type of work. The manuscript makes a strong case for the acknowledgement of these processes in future travel time distribution work. I think the analysis is elegant and compelling and the manuscript is very well written. I have just a few questions and potential wording issues, which are noted below.

C1

Specific Comments: Page 6, Line 13: “in our study did .” I can’t quite figure out what this means, it may need to be reworded.

Figure 2: Definitely not critical, but it could offer helpful context to note the elevations of the lowest and highest contours in one of the maps.

Figure 4: I had a hard time interpreting the pie charts. From reading the caption, it seems like the blue in the pie chart represents the portion of the catchment sourcing water to the stream in 0-2 days (I think?). But then it doesn’t seem like the pie charts match up with the corresponding maps. Are they somehow mismatched? If not, I’d suggest being more explicit what the pie charts represent. Another suggestion: I think they would be clearer just from a visualization perspective if instead of pies, they were rectangles... kind of like a progress bar on a computer. I think these would be easier to read and compare than the pie.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-218>, 2019.

C2