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Interactive comment on "Age-ranked hydrological budgets and a travel time description of catchment hydrology" *by* R. Rigon et al.

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Thank you for writing and sharing this manuscript. As a graduate student using storage selection functions and other transit time models, I benefited from seeing the theory synthesized and presented in a new way. Although I lack the depth of understanding of the reviewers and other experts in the field, I wanted to share some notes I made to myself as I read the paper, in case any of them can be helpful.

Line 7, line 33-34: I was intrigued by the idea of deriving SSF functions (1) for the Nash cascade (line 7) and (2) for relatively complex cases with real-world data (line 33-34), and would have enjoyed more development in both these areas of the manuscript.

Figure 2 - Should this be labeled as a 'residence time backward' cdf? What data was used to produce these and the other plots?

Figure 3 - What is the residence time backward pdf over a continuum of injection times (the x axis) for a single injection time (e.g., tau1)? Shouldn't tau1 just be a slice on the x-axis?

Line 155-160: Is there any problems with using equations 26-28 when rainfall is sometimes zero?

Line 187: Will this integrate to infinity? Or is the second "=" supposed to be "-"?

Line 193: The link to Bayes theorem is interesting. If Bayes theorem is (P(A|B)*P(B) = P(A)*P(B|A)), what are the equivalent events A and B in Niemi's relation?

Line 338-340: Aren't other (including time-varying) SSF functions possible even if discharge is proportional to storage?

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