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Hydrology and Earth System Sciences Discussions

Interactive comment on "On the use of spring baseflow recession for a more accurate parameterization of aquifer transit time distribution functions" *by* J. Farlin and P. Maloszewski

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Subject: Linear vs. quadratic storage-discharge relation

Comment on Sec. 2.2 Recession curve analysis

The authors need to provide the intermediate steps from the Boussinesq $quadratic$ law (Eq. 5) to the $linear$ storage-discharge relation (Eq. 6) attributed to Drogue (1972).

From Eq. (5), the writer obtains a different, quadratic relation as follows (e.g., Ding,

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1966, Eq. 31):

$V(t) = \int_t^\infty Q(t)dt = \frac{\sqrt{Q(t_0)}}{k}\sqrt{Q(t)}$

Note the power of one-half, not one, in the discharge variable Q, and that $Q(t_0)$ is a constant.

References

Ding, J. Y.: Discussion of "Inflow hydrographs from large unconfined aquifers," by H. A. Ibrahim and W. Brutsaert, J. Irrig. Drain. Div., Am. Soc. Civ. Eng., 92(IR1):104-107, 1966.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 14109, 2012.