

Interactive comment on “On the sampling distribution of the coefficient of L-variation for hydrological applications” by A. Viglione

Anonymous Referee #2

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The paper presents a pragmatic method to infer the sampling distribution of the coefficient of L-variation when the sample size is moderate to short and the parent distribution is among those frequently used in hydrology. The work is based on a previous paper of Elamir and Seheult (2004) who derived distribution-free estimators of the variances and covariances of L-moments. Through Monte-Carlo simulations it is shown that the log-Student t distribution outperforms in most of the cases other candidate distributions. A distribution-free bias correction for the sample L-CV and its variance is proposed to improve the fit. The results of the analysis are interesting and potentially very useful in an applied-hydrology context, as shown in Section 5. I really enjoyed reading the paper, which is well organised, sound, complete and well written. Therefore I recommend the publication of it on HESS.

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Some minor comments follows.

page 5472, line 23: maybe it should be pointed out that the variance of the distribution of Eq. (10) is not $\text{var}(t)$ because the variance of the Student distribution is not 1. The same consideration applies to Eq. (14).

page 5474, line 12: "should be uniformly distributed between 0 and 1". Please add a Reference (e.g., Laio et Tamea, 2007).

page 5474, line 9: change "N=10000 samples are" to "N=10000 samples of length n are".

page 5476, line 25: in how many cases the estimate of $\text{var}(t)$ by Elamir & Seheult (2004) is negative?

page 5482, line 15: missing bracket after Eqs. (16) and (17).

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