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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Technical Note: A measure of watershed nonlinearity II: re-introducing an IFP inverse fractional power transform for streamflow recession analysis" *by* J. Y. Ding

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Revised Table 3: Brutsaert-Nieber parameters

This elaborates the response of mine that the correlation coefficient (R) alone is not sufficient to discriminate performances among various combinations of Brutsaert-Nieber (BN) parameters (b, a). (Page C7461, Paragraphs 1-4)

Table 3 (Revised). Summary of Brutsaert-Nieber model parameters for Spoon River, Illinois.

Event[a]	$Q(0)$	Length	Stats[b]	Type of IFP transform, $1/Q^{b-1}$					
	(mm/d)	(day)		None	log	RoCR	RoSR	Recip	RoQ
			b	0	1.0	**1.33**	**1.5**	2.0	3.0
0	0.84	9	a	0.05	0.07	0.08	**0.08**	0.10	0.16
			R	-0.98	-0.99	0.99	0.99	1.00	1.00
3	0.56	4	a	0.06	0.13	**0.17**	0.19	0.29	0.63
			R	-1.00	-1.00	1.00	1.00	0.99	0.98
1	0.29	4	a	0.01	0.05	**0.07**	0.09	0.18	0.66
			R	-1.00	-1.00	0.99	1.00	1.00	1.00
2	0.10	8	a	0.01	0.07	0.15	**0.23**	0.84	10.88
			R	-0.97	-0.98	0.99	0.99	0.99	0.99
Mean			$\bar{a}$	0.03	0.08	**0.12**	**0.15**	0.35	3.08
Variance			$\sigma^2(a)$	0.0007	0.0012	0.0025	0.0055	0.1117	27.0751
Std.Div.			$\sigma(a)$	0.03	0.03	0.05	0.07	0.33	5.20

[a] Events arranged in the descending order of the initial flow value.
[b] b is the shape parameter (-), a the scale parameter $[1/(\mathrm{d\ mm}^{b-1})]$, and R the correlation coefficient.

In the revised Table 3, the bottom three lines provide additional data on the mean, variance, and standard deviation of the scale parameter a. These substantiate the conclusion reached by visual inspection of the parameter scatter diagram (Fig. 3) that the BN parameter pair (b, a) for a large river ranges from (1.33, 0.07) to (1.5, 0.23). These are grounded in the hydrodynamic principles and verified by the statistical test, rather than "a compromise between" these two approaches as originally worded in Page 15668, Lines 26-28.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 15659, 2013.