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Soil moisture and precipitation intensity jointly control the transit time distribution of quick flow in a flashy headwater catchment

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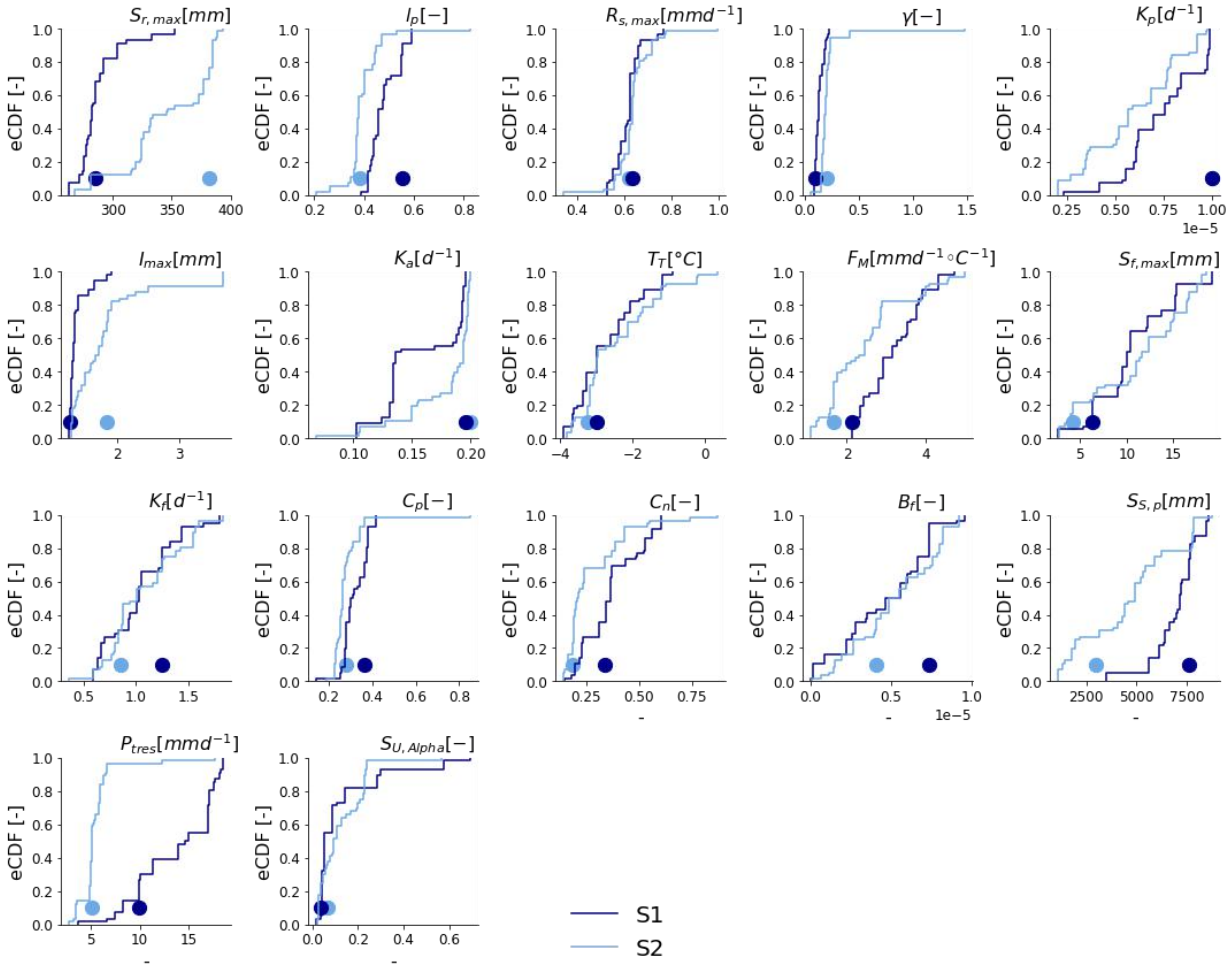

Figure S1: Pareto optimal distributions of selected parameters for the model calibration shown as empirical cumulative distribution functions (lines). The dots indicate the parameter values associated with the best balanced solution for the lowest DE. Dark blues lines and dots indicate parameter sets based on Scenario1 and light-blue lines and dots indicate parameter sets based on scenario 2.

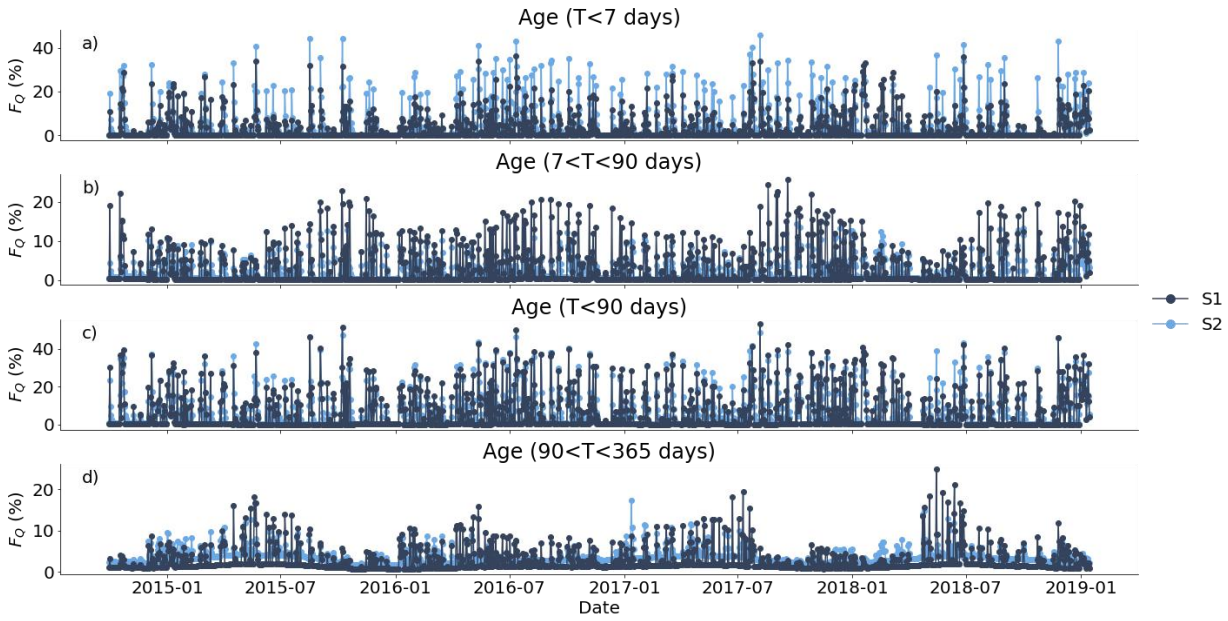

Figure S2: The percentage of water age fractions based on two scenarios for the year from 2015 to 2019. (a, d). Dark blue dots represent the results from Scenario 1 (S1) and light blue dots represent the results from Scenario 2 (S2). The age fraction of streamflow are categorized by age: (a) T< 7 days, (b) 7<T<90 days, (c) T<90 days, and (d) 90<T<365 days.

Table S1: Summary of the mean and maximum (max) percentage of water transit times categorized by age 0< T<7, 7<T<90, 90<T<365 in days based on Scenario 1 and Scenario 2 for different wetness condition(dry, drying, wet and wetting)

		S1				S2			
Transit tim (day)		Dry	Drying	Wet	Wetting	Dry	Drying	Wet	Wetting
T<90	mean[%]	2.73	2.60	7.49	12.78	3.39	4.16	8.22	12.17
	max[%]	30.37	32.64	52.99	46.24	29.91	30.19	48.47	46.38
0<T<7	mean[%]	0.83	1.12	4.54	5.52	1.78	2.52	5.91	8.52
	max[%]	13.78	18.06	36.41	31.85	26.43	26.28	45.89	44.17
7<T<90	mean[%]	1.87	1.43	2.87	7.01	1.61	1.64	2.31	3.66
	max[%]	22.89	15.04	20.67	25.73	14.46	11.73	12.68	13.56
90<T<365	mean[%]	2.11	1.79	2.87	4.81	3.41	3.17	3.89	3.93
	max[%]	14.07	11.67	24.90	21.16	11.78	11.44	17.27	14.83