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Supplement of

Uncertainty in water transit time estimation with StorAge Selection functions and tracer data interpolation

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1 Supplement

Table S1. 95% confidence interval of the behavioral SAS parameter ranges for each tested setup.

| Interpolation	SAS parameters	k_Q [-]	k_{Q1} or α [-]	k_{Q2} or β [-]	k_{ET} [-]	S_0 [mm]
step function kriged $\delta^{18}O_P$	PLTI	0.42 - 1.00	-	-	0.34 - 1.93	590 - 2875
	PLTV	-	0.31 - 0.86	0.56 - 1.80	0.39 - 1.94	575 - 2754
	BETATI	-	0.49 - 1.00	0.26 - 1.98	0.35 - 1.95	783 - 2847
step function raw $\delta^{18}O_P$	PLTI	0.50 - 1.01	-	-	0.18 - 1.92	600 - 2894
	PLTV	-	0.40 - 0.95	0.53 - 1.8	0.20 - 1.95	618 - 2875
	BETATI	-	0.55 - 0.99	1.01 - 1.97	0.20 - 1.93	788 - 2875
sine function kriged $\delta^{18}O_P$	PLTI	0.36 - 1.56	-	-	0.18 - 1.93	335 - 1688
	PLTV	-	0.19 - 1.02	0.62 - 1.96	0.19 - 1.95	335 - 1441
	BETATI	-	0.41 - 1.06	0.84 - 1.99	0.24 - 1.96	411 - 2362
sine function raw $\delta^{18}O_P$	PLTI	0.49 - 1.83	-	-	0.21 - 1.96	335 - 1087
	PLTV	-	0.24 - 1.47	0.81 - 1.97	0.22 - 1.94	353 - 1110
	BETATI	-	0.51 - 1.68	0.25 - 1.98	0.22 - 1.95	347 - 1781
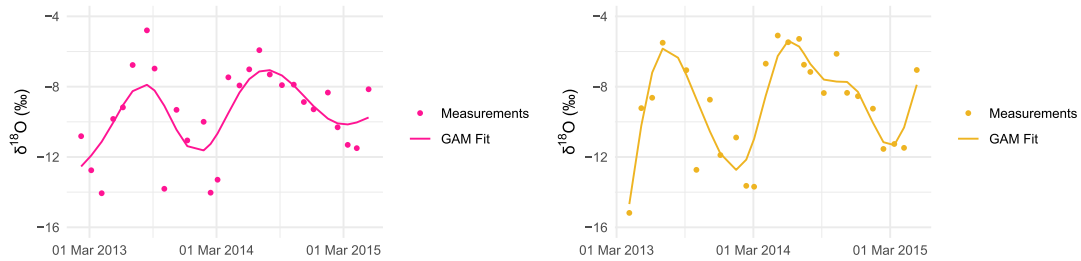
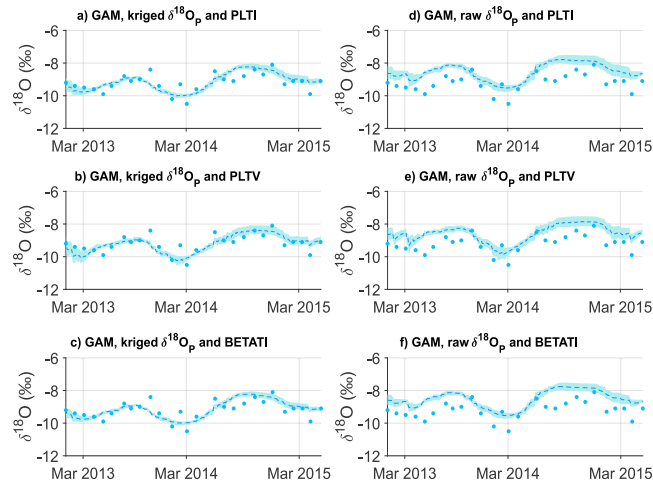**Figure S1.** Measured (dots) and predicted (line) $\delta^{18}O_P$ via GAM with kriged (pink) and raw (yellow) data.

Figure S2. Predicted $\delta^{18}O$ values in streamflow. The dark blue filled circles represent the observed data, and the dashed light blue lines and shaded areas represent the ensemble mean of all possible solutions and their range according to the 95% CI, respectively.
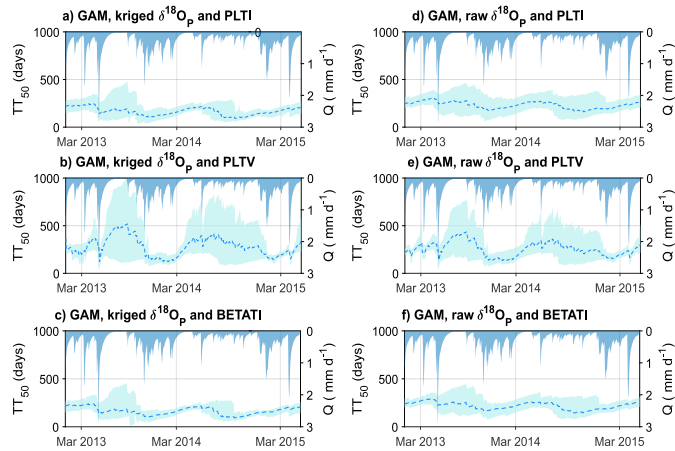

Figure S3. Predicted TT_{50} of streamflow. The dashed light blue lines and shaded areas represent the ensemble mean of all possible solutions and their range according to the 95% CI, respectively.