

Additional Figures and Tables Referenced in Replies to Reviewers of *Water tracing with environmental DNA in a high-Alpine catchment*

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R0 Contents

This addendum contains additional figures (R1 - R6) and two additional tables (R1 - R2) that have been referred to in reply to the reviewer.

R1 Additional Figures

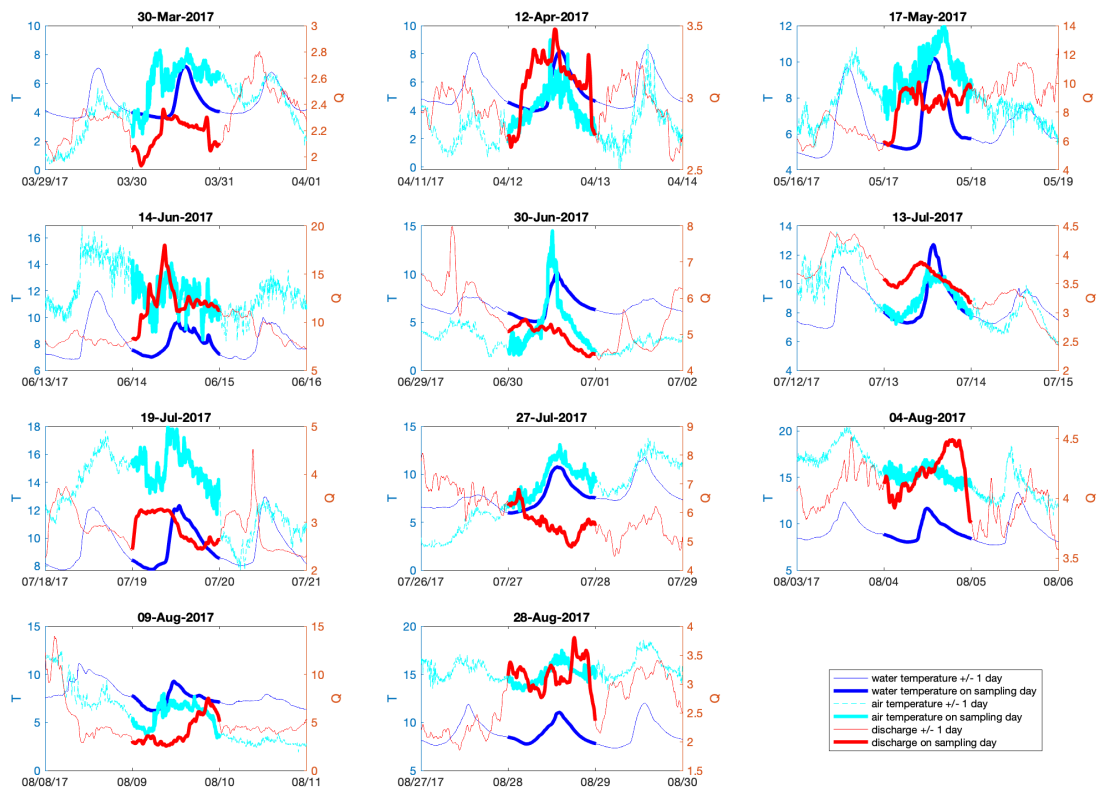


Figure R1. Water temperature (blue, [$^{\circ}C$]), Air Temperature (cyan, [$^{\circ}C$]), and discharge (red, [m^3/s]) on all sampling days (bold) and the previous and following days (regular weight or dashed). Water temperature and discharge were measured at the outlet and air temperature is the average of all meteorological stations.

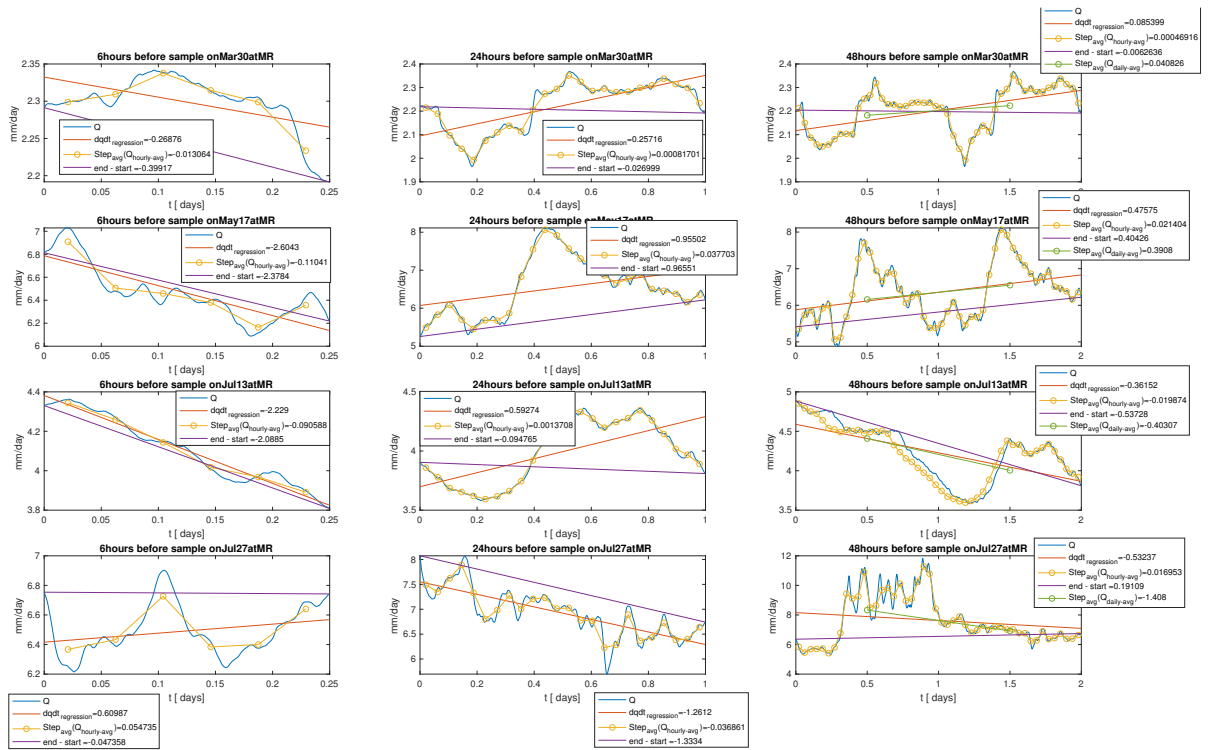


Figure R2. Determination of dq/dt at the morning river "MR" for all sampling dates, showing four different methods as they relate to discharge. Red line shows the regression of all measurements against time, which was retained. Yellow points show the hourly average of Q which was used to determine dq/dt by hourly time-step accordingly. Purple line shows the dq/dt as determined by the single, 2-day time step. And green dots show the daily average and the dq/dt determine by their difference. This is identical to figure S1 in the original supplement, but includes all days.

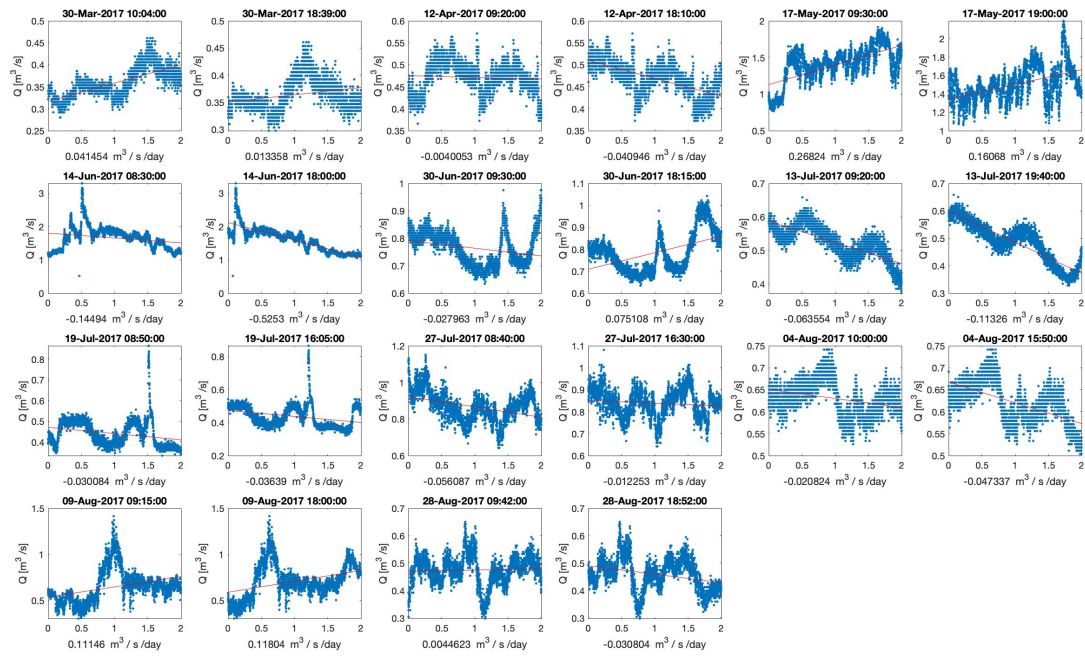


Figure R3. Determination of dq/dt at the outlet at time of sampling morning river "MR" and evening river "ER" for all sampling dates, showing retained method.

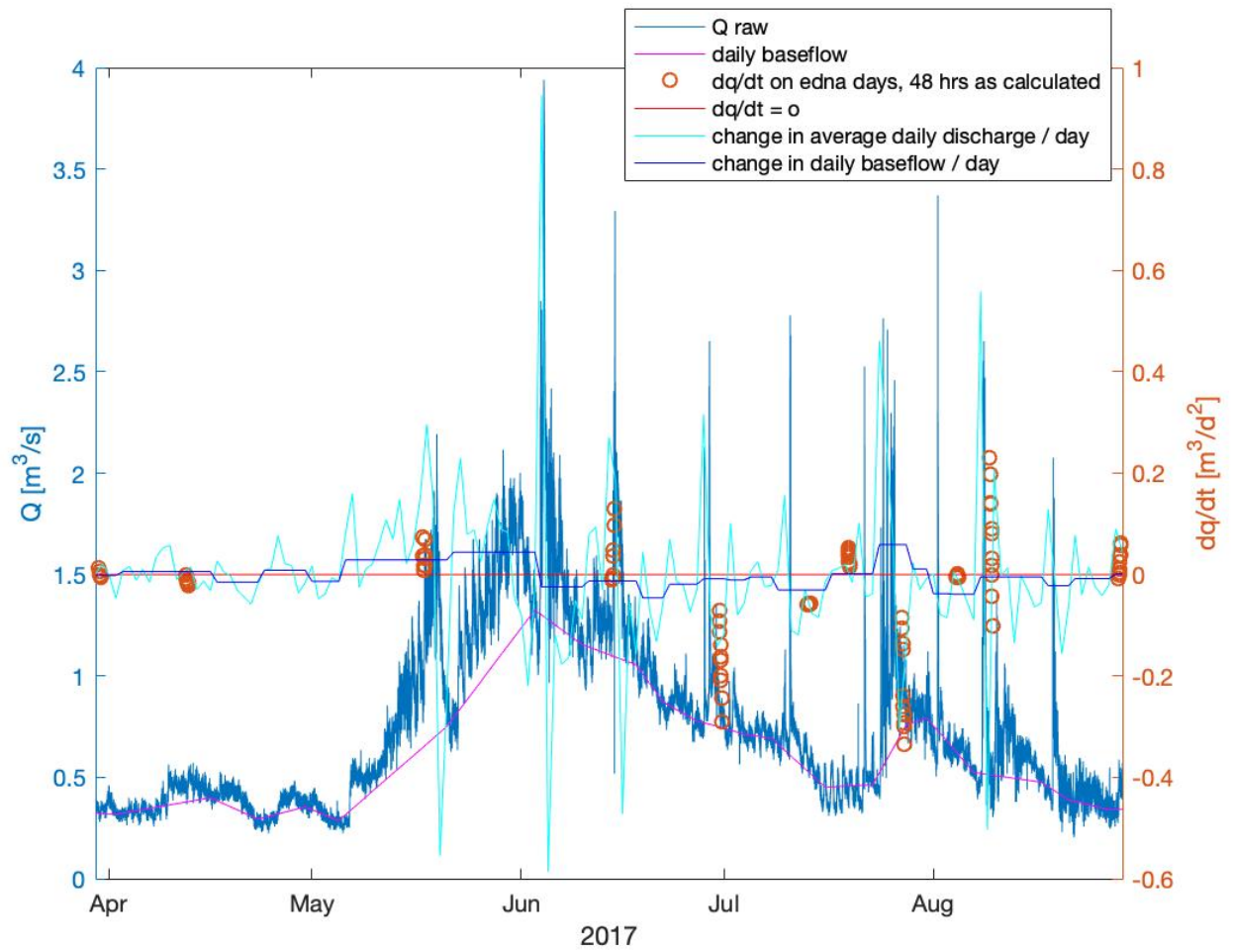


Figure R4. Comparison of dq/dt at each sampling point and time using the retained method (red circles), plotted over the discharge (dark blue line), daily baseflow (magenta line), zeroline for dq/dt (red line), change in average daily discharge (cyan line), and change in daily baseflow /day (bright blue line).

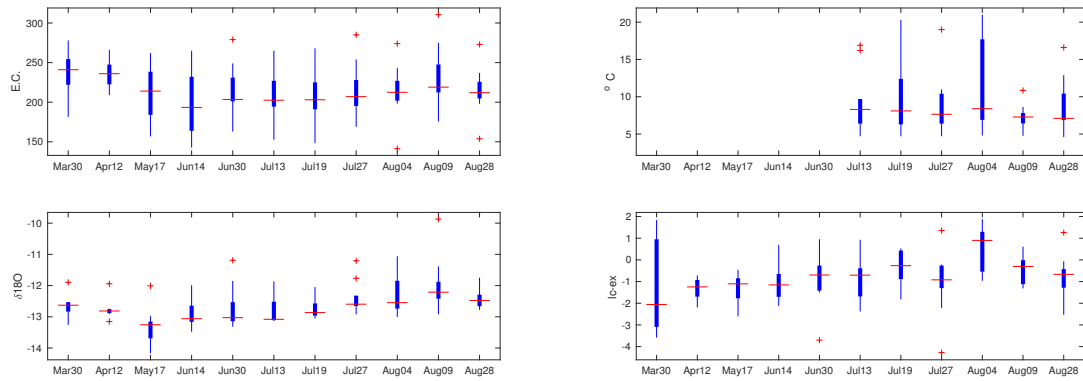


Figure R5. Temporal variability is shown as boxplots displaying the median (central box), 25th and 75th percentiles (bottom and top box edges), range (whiskers), and outliers ('+') for E.C., temperature, $\delta^{18}O$, and lc-excess over all sampling dates.

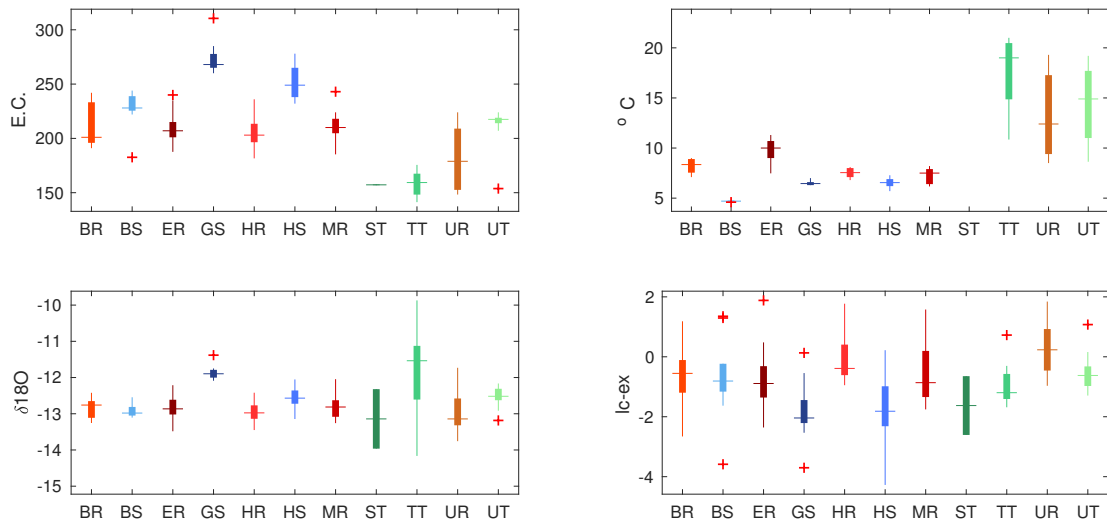


Figure R6. Spatial variability is shown as boxplots displaying the median (central box), 25th and 75th percentiles (bottom and top box edges), range (whiskers), and outliers ('+') for E.C., temperature, $\delta^{18}O$, and lc-excess over all sampling sites.

R2 Additional Tables

Table R1. Table with detailed metadata and mean and standard deviation of main variables for each sampling site.

Site	Lat.	Long.	Elev.	Dist.	Dist.	eDNA	$\delta^{18}O$	δ^2H	lc-ex	E.C.	Temp.	rZOTU	Q	Order
			[m. a.s.l.]	main	outlet	samp.	[‰]	[‰]		[μS /cm]	[°C]	richness	*	†
				[m]	[km]	[no]								
ER	46.253	7.109	1248	0	0	10	-12.82 (0.34)	-90.53 (2.79)	-0.75 (1.2)	210 (16)	9.7 (1.4)	640 (510)	m	4
MR	46.253	7.109	1248	0	0	9	-12.81 (0.35)	-90.22 (3.05)	-0.51 (1.13)	212 (14)	7.3 (0.8)	684 (363)	m	4
HR	46.235	7.104	1435	0	2.6	10	-12.95 (0.29)	-90.91 (2.43)	-0.1 (0.81)	205 (14)	7.5 (0.6)	775 (339)	m	4
BR	46.232	7.102	1477	0	3.4	10	-12.86 (0.27)	-90.7 (2.38)	-0.61 (1.04)	211 (20)	8.2 (0.8)	709 (320)	m	4
UR	46.226	7.098	1519	0	4.2	10	-12.96 (0.6)	-90.6 (4.37)	0.25 (0.88)	183 (30)	13.3 (4.6)	614 (438)	m	4
ST	46.246	7.105	1384	78	2.1	2	-13.14 (1.16)	-93.93 (10.47)	-1.63 (1.39)	157 (-)	- (-)	1320 (188)	1	2
TT	46.240	7.104	1518	100	3.2	8	-11.82 (1.3)	-82.89 (10.64)	-0.91 (0.79)	158 (12)	17.5 (4.1)	910 (282)	1	2
UT	46.226	7.097	1538	10	4.2	9	-12.54 (0.32)	-88.09 (2.85)	-0.51 (0.73)	211 (20)	14.4 (4.2)	934 (192)	1	1
GS	46.247	7.106	1351	50	.7	10	-11.87 (0.2)	-84.18 (1.9)	-1.83 (1.01)	274 (14)	6.5 (0.3)	398 (132)	NA	NA
HS	46.235	7.105	1445	40	2.7	10	-12.59 (0.31)	-89.76 (2.85)	-1.8 (1.29)	252 (16)	6.5 (0.5)	449 (148)	NA	NA
BS	46.232	7.103	1469	5	3.3	10	-12.93 (0.17)	-91.31 (1.24)	-0.69 (1.35)	228 (17)	4.7 (0.1)	203 (124)	NA	NA

*Annual Mean Discharge of characteristic type. "m" refers to medium flow, 0.05 - 1 [m^3 / s] and "1" refers to low flow, < 0.05 [m^3 / s]. See: BAFU Wasser, 2013. River typology for Switzerland. Federal Office for the Environment. 3003 Bern, Switzerland. Available at: <https://www.bafu.admin.ch/bafu/en/home/office/divisions-sections/water-division.html>

†Strahler Order. See: BAFU Wasser, 2014. Strahler stream order. Federal Office for the Environment. 3003 Bern, Switzerland. GeoData. Creation:01-01-2005; Revision:2014-08-06. 2014. Available at: <https://www.bafu.admin.ch/bafu/en/home/office/divisions-sections/water-division.html>

Note that all variables show the mean value followed by the standard deviation in parentheses.

Table R2. Correlation coefficients for calculation of dq/dt with different lengths fit window duration, choice in actual discharge vs. baseflow, and centered on different moments in time, but always at the outlet

No	var	duration [h]	time	location	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Q	24	noon	outlet	1*	0.92	1.00	0.95	0.96	1.00	0.93	1.00	0.94	0.96	-	-	-	-
2	Q	24+	mid	outlet	0.92	1*	0.93	0.89	0.98	0.93	1.00	0.94	0.90	0.96	-	-	-	-
3	Q	24	mid	outlet	1.00	0.93	1*	0.96	0.96	1.00	0.94	1.00	0.95	0.96	-	-	-	-
4	Q	12	mid	outlet	0.95	0.89	0.96	1*	0.92	0.95	0.91	0.96	1.00	0.93	-	-	-	-
5	Q	48	mid	outlet	0.96	0.98	0.96	0.92	1*	0.97	0.99	0.97	0.92	0.99	-	-	-	-
6	bf	24	noon	outlet	1.00	0.93	1.00	0.95	0.97	1*	0.94	1.00	0.95	0.96	-	-	-	-
7	bf	24+	mid	outlet	0.93	1.00	0.94	0.91	0.99	0.94	1*	0.95	0.91	0.97	-	-	-	-
8	bf	24	mid	outlet	1.00	0.94	1.00	0.96	0.97	1.00	0.95	1*	0.96	0.97	-	-	-	-
9	bf	12	mid	outlet	0.94	0.90	0.95	1.00	0.92	0.95	0.91	0.96	1*	0.93	-	-	-	-
10	bf	48	mid	outlet	0.96	0.96	0.96	0.93	0.99	0.96	0.97	0.97	0.93	1*	-	-	-	-
11	Q	48	exact	outlet	-	-	-	-	-	-	-	-	-	-	1*	0.93	0.99	0.93
12	bf	24	exact	outlet	-	-	-	-	-	-	-	-	-	-	0.93	1*	0.94	1.00
13	bf	24	exact	outlet	-	-	-	-	-	-	-	-	-	-	0.99	0.94	1*	0.94
14	bf	48	exact	outlet	-	-	-	-	-	-	-	-	-	-	0.93	1.00	0.94	1*

All values significant ($p < 0.05$) besides those marked with an asterisk (*).

"Q" refers to discharge time series, "bf" refers to calculated baseflow, "24+" refers to starting 24 hours before first sampling time and extending to 24 hours after final sampling time, "mid" refers to the average of all sampling times, "exact" refers to the individual sampling times.