Supplementary information: Hydrological conditions control dissolved organic matter dynamics along a peatland headwater boreal stream

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Table SI.1. Results of statistical test for DOC concentrations, DOC:DON ratio, δ^{13}C-DOC, absorbance indices (SUVA$_{254}$, $E2$:$E3$ ratio and S_R) and fluorescence indices (FI and β:α Index). Statistical tests were based on models for comparison between the average values for the peat porewater, the stream during low flow and the stream during high flow. Significant differences were represented in bold. In the table, statistical test was abbreviating as K-W for Kusrall and Wallis test, WAOV for Welsh analyses of variances and AOV for analyses of variances and environments were abbreviated as PW for peat porewater, Str LF for stream during low flow condition and Str HF for stream during high flow conditions.

| Variable	TEST	STAT		Conditions		
				PW ~ Str HF	PW ~ Str LW	Str HF ~ Str LF
DOC	K-W	27.1	stat	0.446	**-4.24**	**-4.82**
			p-value	1	**< 0.0001**	**< 0.0001**
DOC:DON ratio	AoV	12.203	stat	0.173	**-16.1**	**-16.2**
			p-value	0.999	**0.0001**	**< 0.0001**
δ^{13}C-DOC	K-W	22.9	stat	**-4.59**	**-3.36**	1.27
			p-value	**< 0.0001**	**0.0023**	0.617
SUVA$_{254}$	K-W	28.2	stat	-2.06	**3.08**	**5.29**
			p-value	0.118	**0.0061**	**< 0.0001**
$E2$:$E3$	WAoV	66.7	stat	**0.392**	-0.0405	**-0.433**
			p-value	**< 0.0001**	0.87	**< 0.0001**
S_R	K-W	30	stat	**5.02**	0.587	**-4.25**
			p-value	**< 0.0001**	1	**< 0.0001**
Fluorescence Index	AoV	7.689	stat	**-0.0628**	0.0293	0.0921
			p-value	**0.036**	0.524	**0.001**
β:α	K-W	9.65	stat	-1.96	0.914	**3**
			p-value	0.149	1	**0.0082**
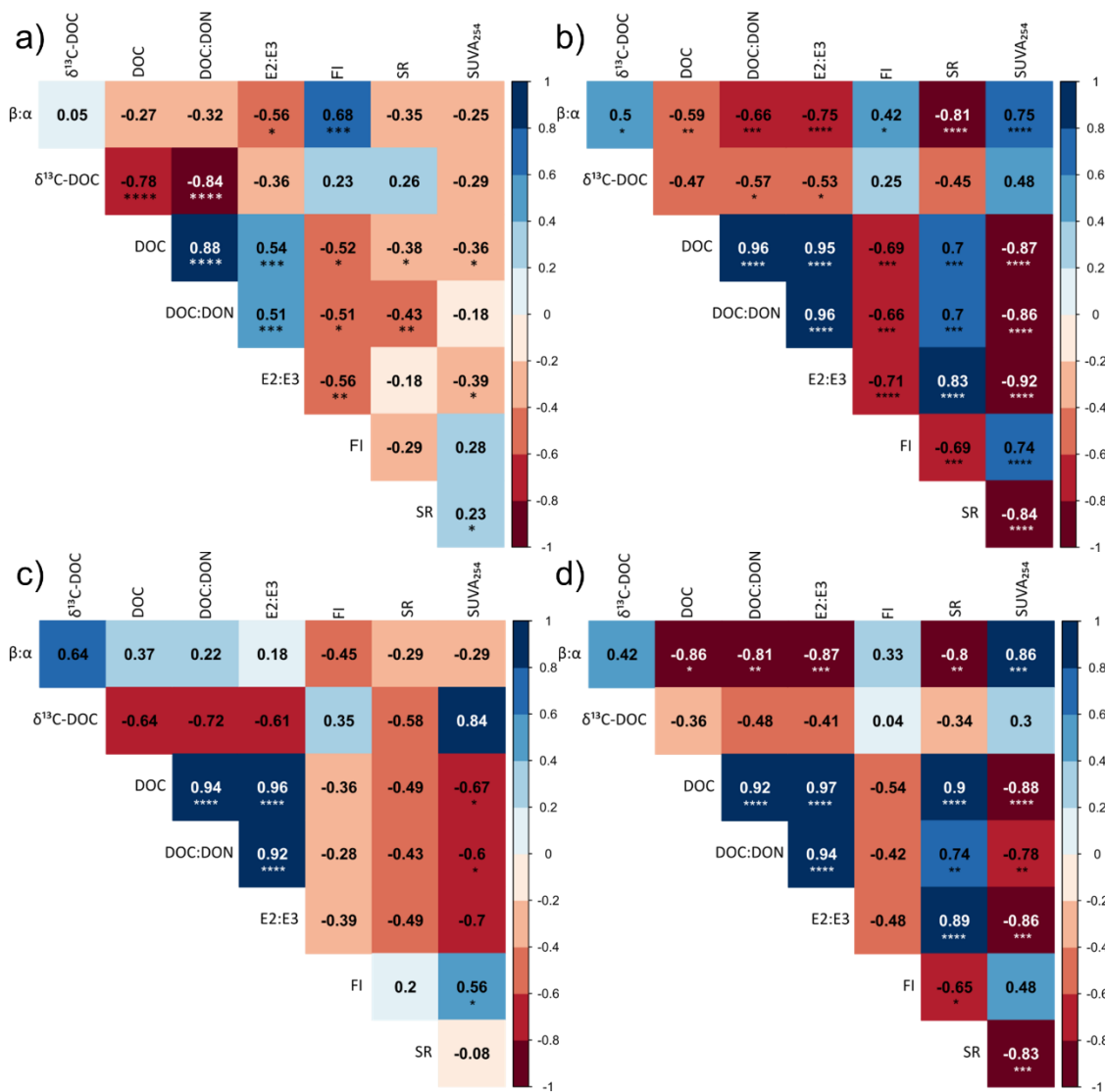
Figure SI.1. Correlograms for DOC concentration and DOM composition index including DOC : DON ratio, δ^{13}C-DOC, SUVA$_{254}$, $E2 : E3$, S_R, FI and $\beta : \alpha$ for a) the porewater, b) the stream, c) the stream during high flow conditions and d) the stream during low flow conditions. The significance of correlations was indicated as follows : * : p-value < 0.05, ** : p-value < 0.01, *** : p-value < 0.001, **** : p-value < 0.0001.

Table SI.2. Synthesis of the linear regressions and correlations between the Q_{R08} and the %fDOC$_{min}$ and the ΣRt, and between the %fDOC$_{min}$ and the ΣRt.

	Linear regression	R^2	cor	p-value
%fDOC$_{min}$ ~ Q$_{R08}$	y = -118x + 9.715	0.722	-0.88	0.0201
ΣRt ~ Q$_{R08}$	y = -1145x + 101.7	0.429	-0.74	0.0947
ΣRt ~ %fDOC$_{min}$	y = 10.78x + 1.996	0.826	0.93	0.0076

Table SI.3. Synthesis of the linear regressions and correlations of the differences in DOM composition index from the most upstream section to the outlet according to (a) the discharge at the stream outlet (Q_{R08}), (b) the proportion of $fDOC_{min}$ to the fDOC at the stream outlet ($\%fDOC_{min}$), and (c) the residence time in the stream (ΣRt).

(a)

Model	Linear regression	R^2	cor	p-value
$\Delta DOC:DON \sim Q_{R08}$	y = 347.6x - 29.57	0.809	0.92	0.0093
$\Delta SUVA_{254} \sim Q_{R08}$	y = -18.45x + 1.982	0.863	-0.94	0.0047
$\Delta E2:E3 \sim Q_{R08}$	y = 11.25x - 1.124	0.909	0.96	0.0020
$\Delta S_R \sim Q_{R08}$	y = 3.732x - 0.2632	0.930	0.97	0.0012
$\Delta FI \sim Q_{R08}$	y = -0.4875x + 0.1475	-0.198	-0.20	0.6970
$\Delta \beta : \alpha \sim Q_{R08}$	y = -3.909x + 0.2902	0.837	-0.93	0.0067

(b)

Model	Linear regression	R^2	cor	p-value
$\Delta DOC:DON \sim \%fDOC_{min}$	y = -2.138x - 5.063	0.468	-0.76	0.0810
$\Delta SUVA_{254} \sim \%fDOC_{min}$	y = 0.1055x + 0.7223	0.402	0.72	0.1049
$\Delta E2:E3 \sim \%fDOC_{min}$	y = -0.0787x - 0.2817	0.766	-0.90	0.0141
$\Delta S_R \sim \%fDOC_{min}$	y = -0.0267x + 0.019	0.831	-0.93	0.0072
$\Delta FI \sim \%fDOC_{min}$	y = -0.0031x + 0.1444	-0.211	-0.18	0.7368
$\Delta \beta : \alpha \sim \%fDOC_{min}$	y = 0.0249x + 0.0102	0.539	0.79	0.0590

(c)

Model	Linear regression	R^2	cor	p-value
$\Delta DOC:DON \sim \Sigma Rt$	y = -0.1737x - 6.069	0.389	-0.71	0.1105
$\Delta SUVA_{254} \sim \Sigma Rt$	y = 0.0072x + 0.849	0.161	0.57	0.2341
$\Delta E2:E3 \sim \Sigma Rt$	y = -0.0058x - 0.3502	0.504	-0.78	0.0692
$\Delta S_R \sim \Sigma Rt$	y = -0.0020x - 0.0028	0.573	-0.81	0.0499
$\Delta FI \sim \Sigma Rt$	y = -0.0005x + 0.1564	-0.120	-0.32	0.5331
$\Delta \beta : \alpha \sim \Sigma Rt$	y = 0.0017x + 0.0395	0.253	0.63	0.1759