

Supplementary Material for: Enhanced statistical
evaluation of fluorescence properties to identify
dissolved organic matter dynamics during river
high-flow events

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S1. Representative Contour Plots of All Sampled Events

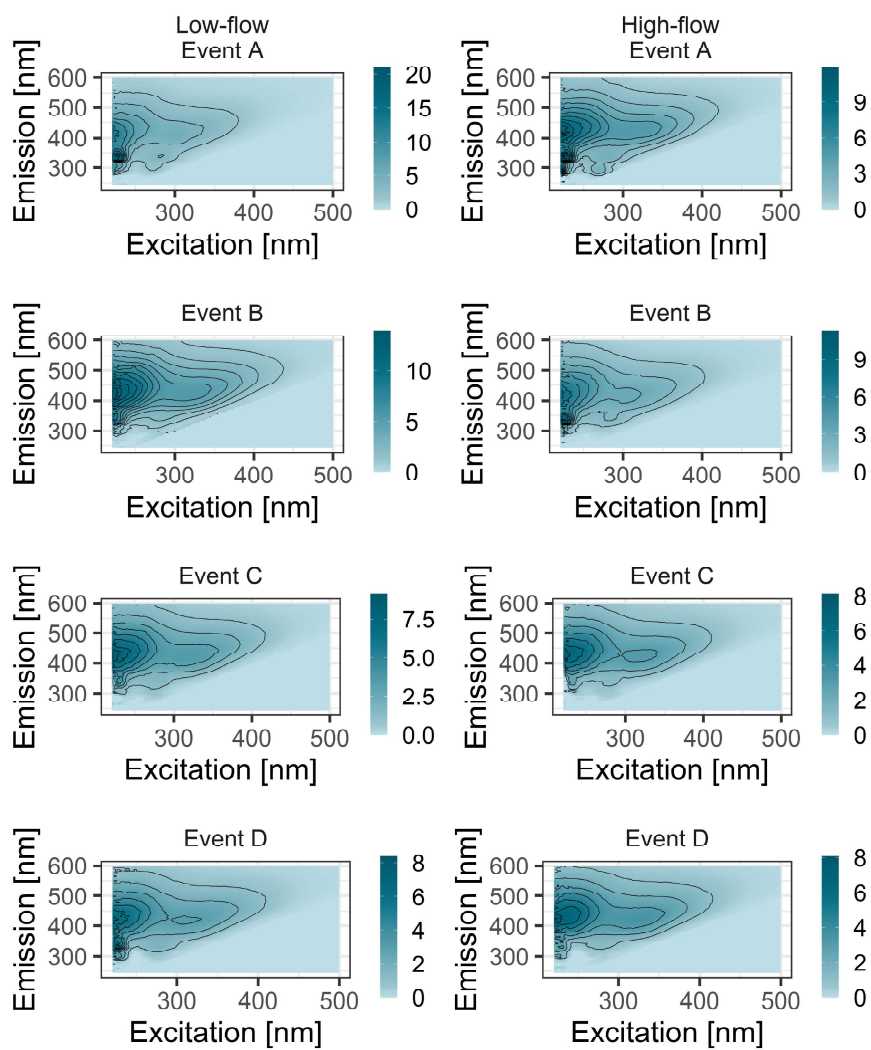


Figure S1: Representative contour plots of river water EEM of events A to D at low-flow and high-flow conditions. The color scale indicates the fluorescence intensity [R.U.].

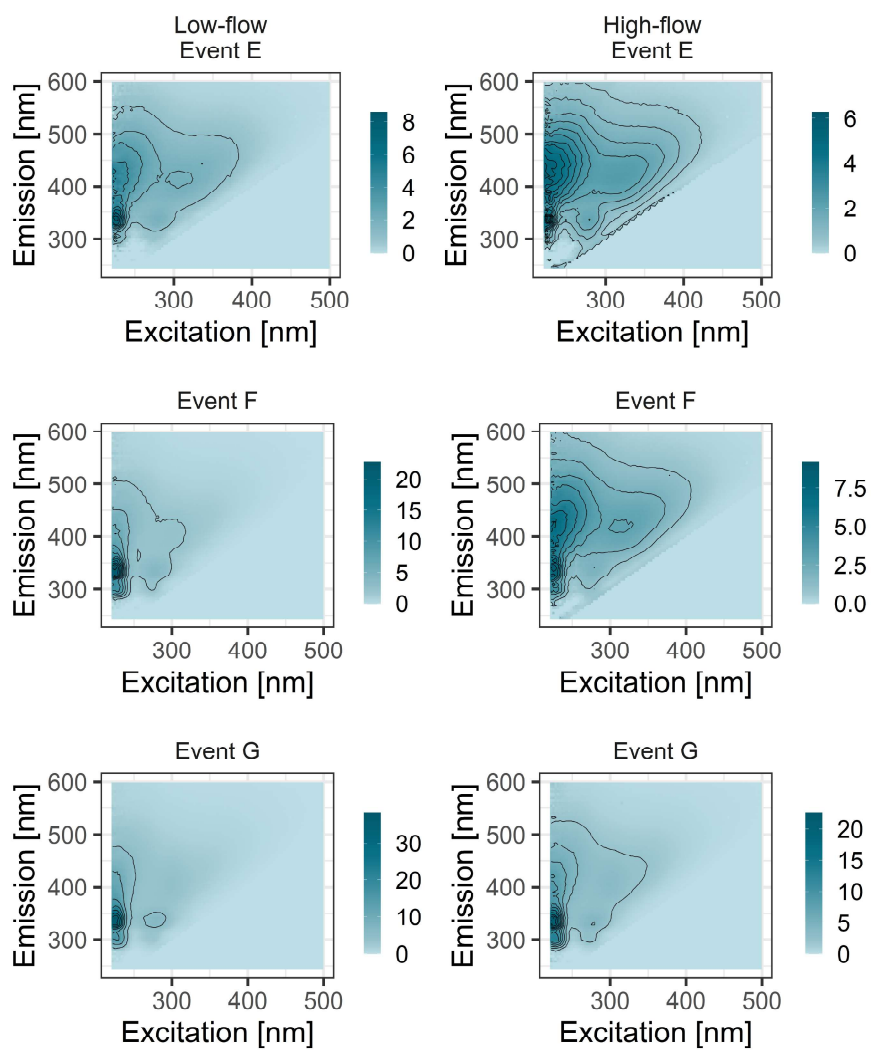


Figure S2: Representative contour plots of river water EEM of events E to G at low-flow and high-flow conditions. The color scale indicates the fluorescence intensity [R.U.].

S2. Split-Half Analysis of PARAFAC Model

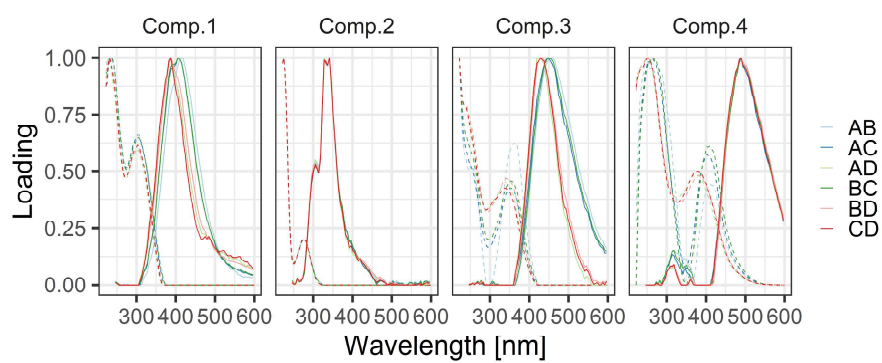


Figure S3: Results of the split-half analysis to validate the final four-component PARAFAC model. All Tucker's Congruency Coefficients were greater than 0.9.

S3. Water Quality Parameters and Coble Peaks of All Samples

Table S1: Raw data of water quality parameters (in mg L^{-1}) and Coble peaks (B, T, A, M, and C in R.U.) of all 74 samples. Parameters not available are marked as such (n.a.).

ID	Event	Date & Time (UTC)	DOC	Cl^-	$\text{PO}_4\text{-P}$	$\text{NH}_4\text{-N}$	TSS	B	T	A	M	C
1	A	2020-06-29 14:30	4.90	42.60	0.03	0.01	243.00	2.50	3.91	6.63	5.03	3.38
2	A	2020-06-29 15:00	4.80	36.60	0.05	0.02	1226.30	2.29	3.47	7.82	5.58	4.08
3	A	2020-06-29 15:30	6.40	32.00	0.05	0.01	4195.00	1.93	2.91	6.86	4.88	3.59
4	A	2020-06-29 16:00	5.20	32.70	0.04	0.12	3280.00	1.88	2.82	7.63	5.28	4.07
5	A	2020-06-29 16:30	5.90	26.80	0.04	0.32	5945.00	2.04	2.64	7.65	5.12	4.16
6	A	2020-06-29 17:00	7.90	29.40	0.03	0.58	10650.00	2.02	2.59	7.46	5.00	4.02
7	A	2020-06-29 17:30	5.90	31.80	0.03	0.80	11945.00	2.20	2.83	7.17	4.79	3.87
8	A	2020-06-29 18:00	7.00	27.90	0.04	1.13	14090.00	2.05	2.76	7.00	4.66	3.91
9	B	2020-07-11 21:56	4.00	n.a.	0.08	0.02	385.00	0.88	2.01	5.06	3.50	2.62
10	B	2020-07-11 22:01	3.70	n.a.	0.07	0.01	548.30	0.84	1.94	4.71	3.29	2.45
11	B	2020-07-11 22:05	3.80	n.a.	0.07	0.02	673.10	0.85	2.03	4.84	3.39	2.55
12	B	2020-07-11 22:13	4.00	n.a.	0.07	0.01	579.20	0.87	2.08	5.68	3.92	2.98
13	B	2020-07-12 01:36	3.50	n.a.	0.07	0.01	606.90	0.80	1.98	4.71	3.22	2.47
14	B	2020-07-12 04:22	4.30	n.a.	0.08	0.01	675.40	0.95	2.02	5.89	3.88	3.13
15	B	2020-07-12 04:41	4.60	n.a.	0.09	0.01	733.80	0.96	2.03	6.14	4.04	3.31

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ID	Event	Date & Time (UTC)	DOC	Cl ⁻	PO ₄ -P	NH ₄ -N	TSS	B	T	A	M	C
16	B	2020-07-12 04:52	4.80	n.a.	0.09	0.01	710.00	0.99	2.04	6.23	4.07	3.37
17	B	2020-07-12 07:40	6.30	n.a.	0.11	0.02	784.00	1.10	2.30	8.35	5.36	4.54
18	B	2020-07-12 08:13	6.10	n.a.	0.10	0.01	692.00	0.99	2.12	7.88	5.03	4.24
19	B	2020-07-12 08:17	6.10	n.a.	0.10	0.01	663.00	1.02	2.20	7.99	5.08	4.32
20	B	2020-07-12 10:04	6.70	n.a.	0.10	0.01	566.00	1.09	2.28	8.84	5.59	4.80
21	B	2020-07-12 15:13	7.40	n.a.	0.10	0.03	364.00	1.10	2.33	10.07	6.31	5.38
22	B	2020-07-12 18:25	6.90	n.a.	0.09	0.03	245.00	1.02	2.12	8.85	5.54	4.82
23	C	2020-10-12 02:01	6.00	32.90	0.05	0.02	698.00	1.19	2.10	4.84	3.25	2.72
24	C	2020-10-12 02:37	6.80	27.80	0.06	0.02	1022.00	0.83	1.57	5.04	3.20	2.80
25	C	2020-10-12 03:38	7.80	23.40	0.05	0.04	1224.00	1.27	2.08	5.83	3.91	3.35
26	C	2020-10-12 06:06	9.30	18.20	0.07	0.03	1376.00	1.30	2.45	6.90	4.44	3.87
27	C	2020-10-12 06:22	8.90	17.50	0.07	0.02	1500.00	1.43	2.30	6.54	4.24	3.69
28	C	2020-10-12 08:33	8.90	15.60	0.07	0.02	1306.00	1.13	2.35	6.67	4.21	3.69
29	C	2020-10-12 10:43	9.40	15.30	0.07	0.01	1060.00	1.10	1.78	7.25	4.52	4.02
30	C	2020-10-12 15:15	8.30	15.10	0.08	0.04	1468.00	0.86	1.55	6.97	4.45	3.95
31	C	2020-10-12 18:48	8.50	16.50	0.08	0.00	522.00	0.78	1.41	6.41	4.00	3.62
32	C	2020-10-12 19:57	8.10	17.60	0.10	0.01	337.50	0.92	1.48	6.79	4.21	3.80

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ID	Event	Date & Time (UTC)	DOC	Cl ⁻	PO ₄ -P	NH ₄ -N	TSS	B	T	A	M	C
33	C	2020-10-13 02:31	7.40	19.40	0.09	0.01	183.00	0.92	1.46	6.55	4.08	3.62
34	C	2020-10-13 05:59	6.80	21.20	0.07	0.02	139.00	0.92	1.48	5.76	3.55	3.18
35	C	2020-10-13 10:15	5.60	21.10	0.06	0.06	88.00	0.72	1.08	4.81	3.06	2.67
36	C	2020-10-13 12:05	5.60	22.20	0.06	0.03	86.00	0.68	1.17	4.97	3.15	2.81
37	D	2020-12-09 09:22	5.99	n.a.	0.02	0.19	277.00	0.85	1.75	4.61	3.11	2.68
38	D	2020-12-09 20:32	5.10	n.a.	0.03	0.14	786.25	0.67	1.29	4.46	2.98	2.62
39	D	2020-12-09 21:42	5.20	n.a.	0.03	0.09	1047.50	0.68	1.35	4.83	2.93	2.75
40	D	2020-12-09 22:24	5.30	n.a.	0.03	0.10	1095.00	0.65	1.35	4.30	2.88	2.50
41	D	2020-12-09 22:43	6.60	n.a.	0.06	0.06	1000.00	0.56	1.28	5.18	3.53	2.94
42	D	2020-12-10 00:42	6.80	n.a.	0.03	0.14	773.75	0.69	1.27	4.74	3.08	2.76
43	D	2020-12-10 01:49	6.40	n.a.	0.04	0.19	523.75	0.66	1.38	5.16	3.39	3.06
44	D	2020-12-10 03:15	6.60	n.a.	0.04	0.17	601.25	0.69	1.40	5.34	3.50	3.12
45	D	2020-12-10 04:17	6.70	n.a.	0.04	0.15	548.75	0.63	1.43	5.61	3.65	3.26
46	D	2020-12-10 05:17	6.70	n.a.	0.04	0.14	1308.57	0.50	1.21	5.40	3.52	3.16
47	E	2021-01-03 13:20	2.70	33.00	0.03	0.01	34.00	2.00	3.00	2.87	2.12	1.73
48	E	2021-01-03 18:50	2.70	40.00	0.04	0.01	39.00	1.95	3.30	3.01	2.08	1.65
49	E	2021-01-03 21:30	2.70	38.00	0.04	0.01	35.00	2.22	3.40	3.24	2.33	1.77

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ID	Event	Date & Time (UTC)	DOC	Cl ⁻	PO ₄ -P	NH ₄ -N	TSS	B	T	A	M	C
50	E	2021-01-04 03:45	2.70	35.00	0.03	0.01	32.00	1.73	2.52	3.22	2.13	1.77
51	E	2021-01-04 07:10	2.90	40.00	0.04	0.01	31.00	1.25	2.47	3.22	2.30	1.82
52	E	2021-01-05 23:25	3.00	32.50	0.03	0.01	21.00	0.79	1.12	1.69	1.13	0.95
53	E	2021-01-07 09:45	3.30	35.20	0.04	0.01	53.00	1.16	1.89	3.69	2.37	2.09
54	E	2021-01-08 10:55	3.40	41.60	0.03	0.04	62.00	1.69	2.51	3.68	2.47	2.10
55	E	2021-01-09 16:50	2.90	36.50	0.03	0.05	18.00	0.89	1.85	2.98	2.10	1.67
56	E	2021-01-10 09:00	2.50	39.00	0.03	0.06	16.00	2.17	3.76	3.04	2.18	1.61
57	F	2021-02-07 17:32	2.70	54.10	0.01	0.02	37.60	2.25	3.72	2.67	2.21	1.44
58	F	2021-02-09 07:02	3.10	53.50	0.01	0.02	72.50	1.56	2.36	3.17	2.22	1.75
59	F	2021-02-09 12:13	3.70	49.70	0.02	0.02	120.00	1.31	2.16	3.82	2.59	2.14
60	F	2021-02-09 15:07	4.30	51.10	0.03	0.03	115.50	1.35	2.20	4.12	2.75	2.27
61	F	2021-02-09 20:42	4.70	48.30	0.04	0.02	164.50	1.19	1.91	4.65	3.05	2.61
62	F	2021-02-09 21:36	4.70	48.20	0.03	0.04	220.90	1.15	1.92	4.72	3.09	2.66
63	F	2021-02-10 03:48	4.80	46.10	0.04	0.03	174.50	1.10	1.84	4.69	3.04	2.63
64	F	2021-02-10 05:42	4.50	41.90	0.03	0.01	159.10	1.19	2.11	4.71	3.08	2.64
65	F	2021-02-10 08:56	4.60	41.80	0.03	0.03	149.10	1.10	1.79	4.56	2.96	2.56
66	G	2021-05-17 05:50	4.00	n.a.	n.a.	n.a.	n.a.	3.26	6.06	4.24	3.73	2.15

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ID	Event	Date & Time (UTC)	DOC	Cl ⁻	PO ₄ -P	NH ₄ -N	TSS	B	T	A	M	C
67	G	2021-05-17 12:25	3.50	n.a.	n.a.	n.a.	33.70	2.34	3.81	3.90	3.22	2.01
68	G	2021-05-17 14:55	3.50	n.a.	n.a.	n.a.	253.30	2.65	3.86	3.81	3.10	1.98
69	G	2021-05-17 16:35	3.60	n.a.	n.a.	n.a.	238.50	2.60	3.66	4.06	3.14	2.11
70	G	2021-05-17 18:05	3.70	n.a.	n.a.	n.a.	180.00	2.62	3.85	4.01	3.17	2.11
71	G	2021-05-17 19:35	3.80	n.a.	n.a.	n.a.	n.a.	2.21	3.72	3.77	2.99	2.01
72	G	2021-05-17 21:25	3.80	n.a.	n.a.	n.a.	n.a.	2.63	4.49	3.86	3.10	2.04
73	G	2021-05-18 00:10	4.00	n.a.	n.a.	n.a.	n.a.	2.76	4.31	4.16	3.18	2.15
74	G	2021-05-18 02:40	3.90	n.a.	n.a.	n.a.	n.a.	2.51	4.01	4.21	3.20	2.20