Biogeosciences

Supplement of

Drivers of seasonal- and event-scale DOC dynamics at the outlet of mountainous peatlands revealed by high-frequency monitoring

Thomas Rosset et al.

Correspondence to: Thomas Rosset (thomas.rosset@ensat.fr)

The supplementary information include one figure which illustrates the relationships between fDOM and DOC concentration both at the outlet of Bernadouze peatland and at the outlet of Ech peatland. DOC concentrations and optical measurements were monitored at low flows and during several flood events between the 1st September 2015 to 31st December 2018 at Bernadouze site and from 22nd May 2017 to 19th February 2019 at Ech site.

The supplementary information include a second figure which illustrates the Pearson correlation matrices used to assess the multicollinearity among all the predictors at each site.

The supplementary information include also a table describing the depth and the biogeochemical characteristics of each piezometer wells used in this study (8 in Bernadouze and 4 in Ech).
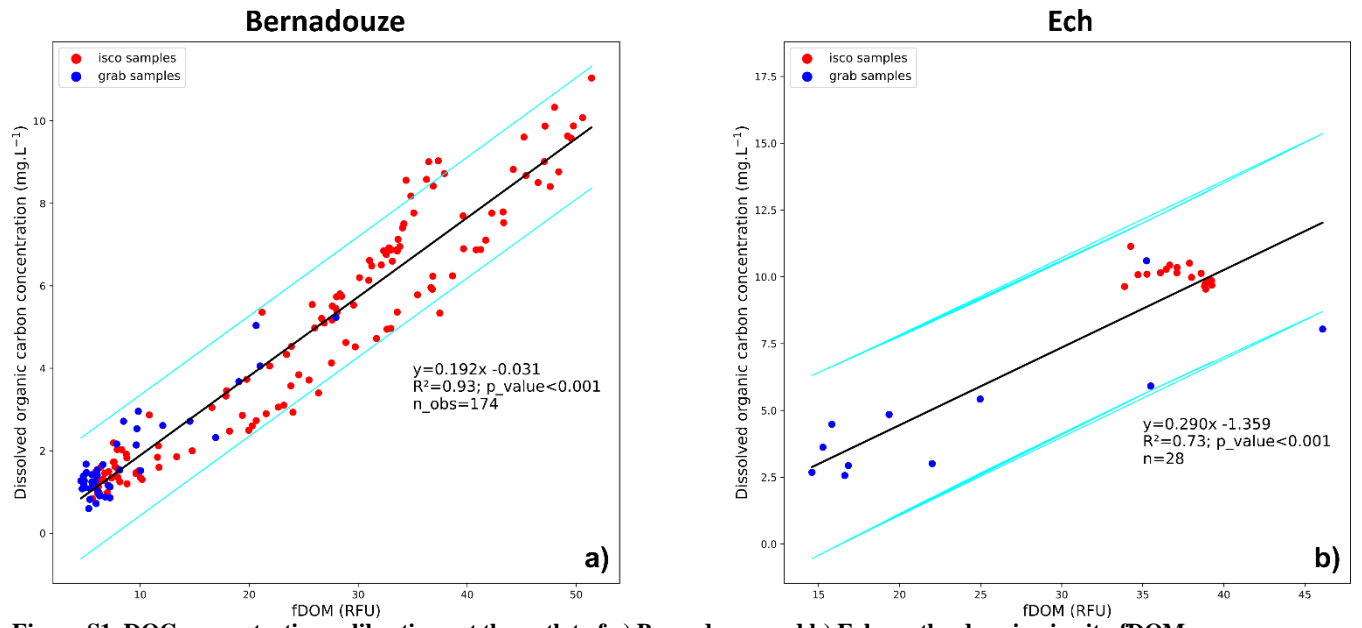
Figure S1. DOC concentration calibrations at the outlet of a) Bernadouze and b) Ech peatlands using in situ fDOM measurements from stream water manually (blue points) or automatically (red points) sampled. RFU stands for Relative Fluorescence Unit.
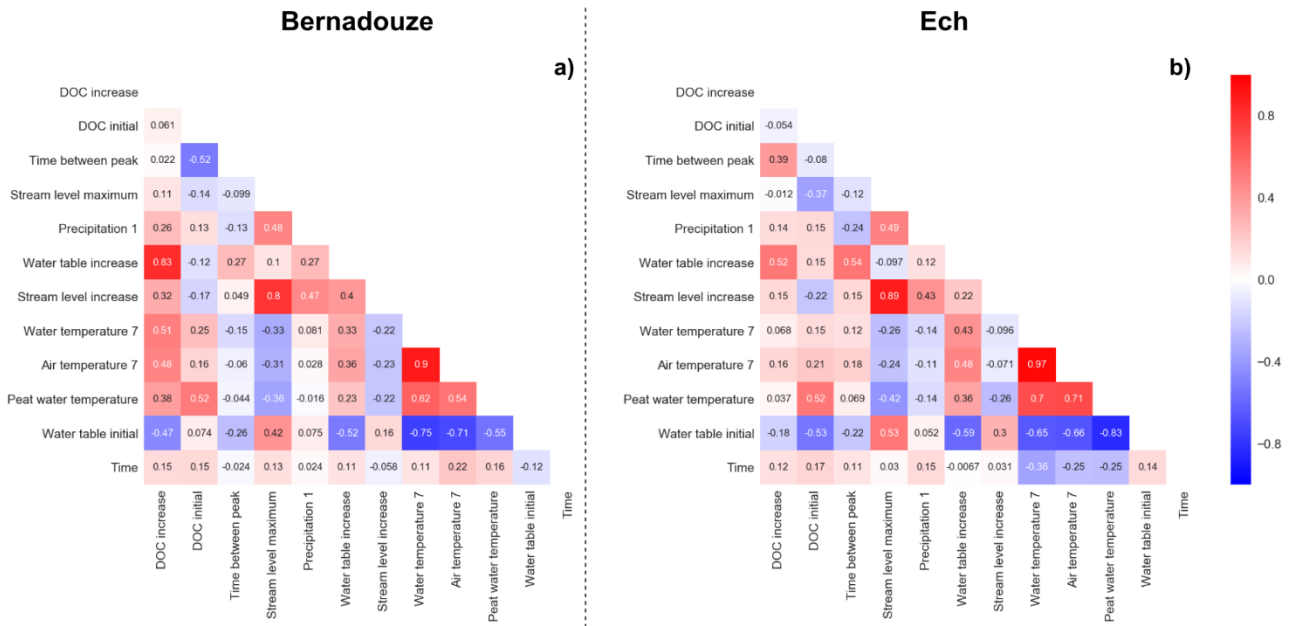
Figure S2. Pearson correlation matrices between the DOC concentration targeted variables and common explanatory variables at Bernadouze a) and Ech b). In view of their strong correlation with other variables (Pearson's correlation |r > 0.7|), the air temperature over 7 days (air_temp_bf7d), the stream water level maximum (log_water_level_max) and the initial water table level (piezo_level_initial) were excluded from the analysis. The air temperature over 7 days was preferentially excluded compared to water temperature over 7 days because of data reliability (air temperature was gap-filled at Ech).

Peatland	Denomination	Depth (m)	pH	DOC concentration (mg. L^{-1})	Water recession time (day)
Bernadouze	PZ2	-2.20	5.7 ± 0.1	33.4 ± 6.3	77
	PZ3	-1.29	6.1 ± 0.2	15.7 ± 5.9	53
	PZ5	-1.73	6.0 ± 0.2	10.9 ± 5	45
	PZ6	-1.36	6.4 ± 0.3	10.5 ± 2.3	38
	PZ7	-2.15	6.6 ± 0.3	10.4 ± 1.5	48
	PZ8	-0.90	6.3 ± 0.1	7.4 ± 4.1	45
	PZ9	-0.98	6.1 ± 0.2	17.3 ± 9.6	15
	PZ10	-1.23	6.1 ± 0.2	14.5 ± 0.3	21
Ech	CEP1	-2.39	4.6 ± 0.7	17.7 ± 0.3	59
	CEP2	-2.38	5.5 ± 0.3	34.7 ± 9.7	63
	CEP3	-2.36	5.1 ± 0.3	33.6 ± 25.5	143
	CEP4	-2.28	4.6 ± 0.8	63.4 ± 2.9	125

Table S3. Piezometer plot description. pH and DOC concentration were sampled four times in Bernadouze and 3 times in Ech. Water recession times were obtained from exponential master recession curve models.