

Appendix

Figure A1. Flow scheme and setup of the multi-parameter probe (incl. fDOM sensor) and the spectrolyser placed in-line with water pumps at the pumping station at Storvad.

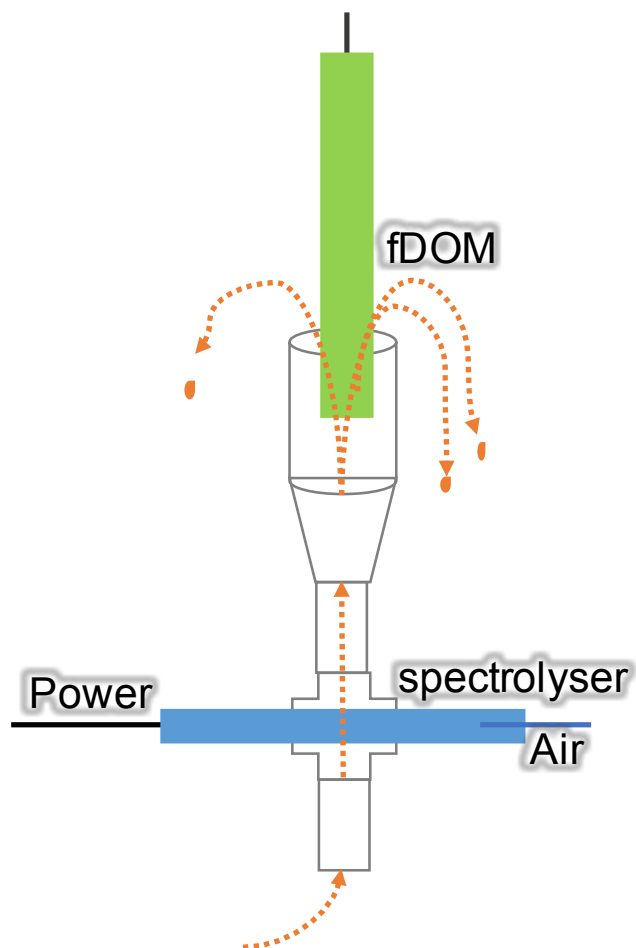


Figure A2. Time series of the year 2017 with groundwater levels measured nearby and water temperature, silica and filtered iron concentrations, and absorbance at 420 nm, at their respective sampling day at the monitoring station Klastorp (7 km downstream the study site).

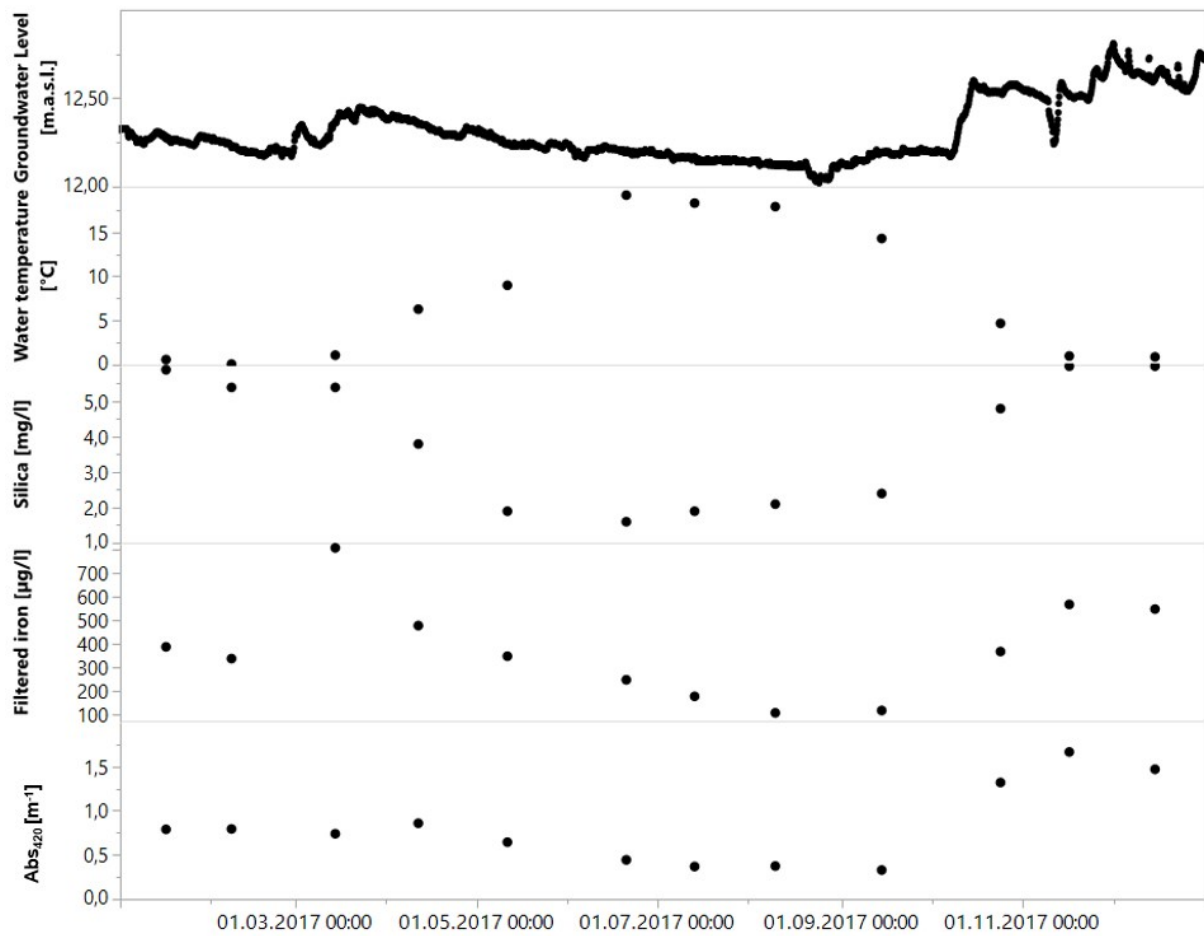


Figure A3. Data points of the calibration data set used for correcting the fDOM signal for (a) inner-filter effects, and (b) turbidity.

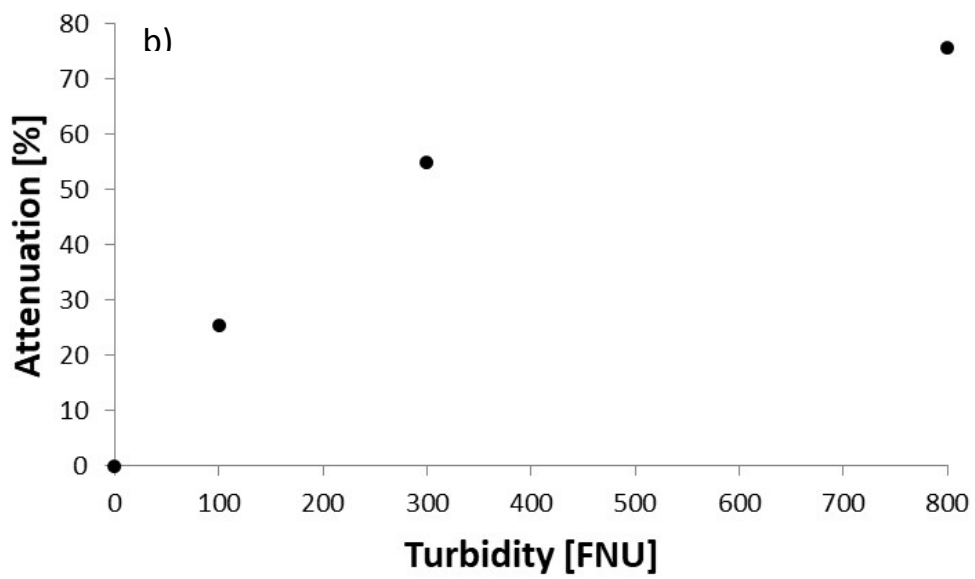
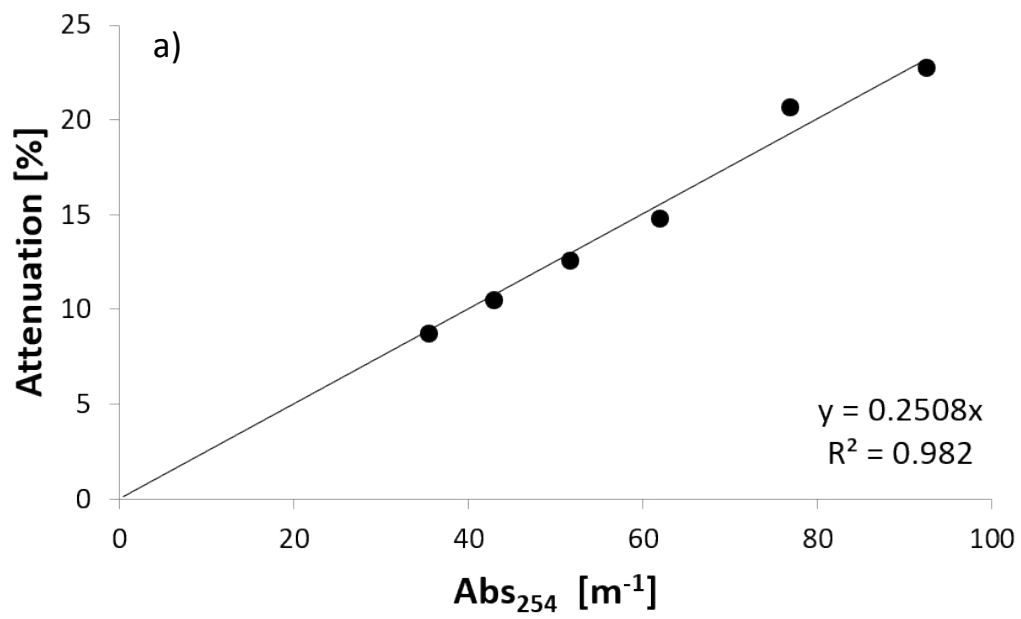


Figure A4. Time series showing the originally observed and finally corrected fDOM signal. The separate correction steps are indicated by the grey lines (corr. = correction, i.e. influences considered in this correction step).

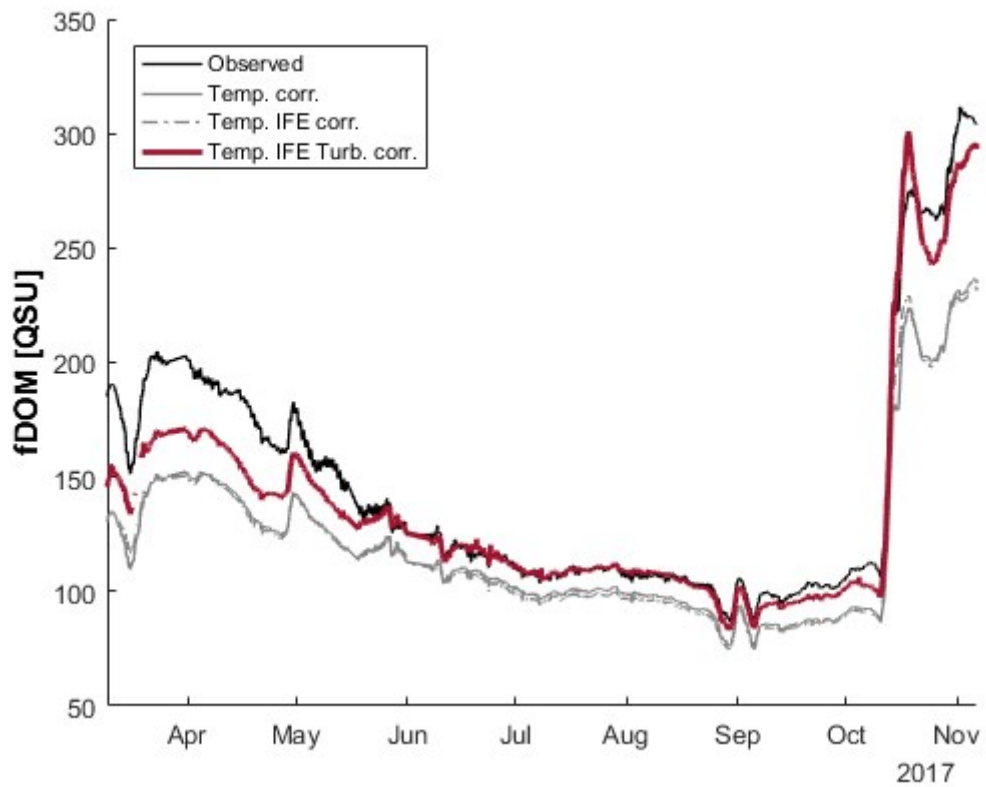


Figure A5. Variable Importance for the Projection (VIP) of the 214 wavelengths used as predictors in the 2-component PLS analysis of the DOC model based on the sensor absorbance spectra.

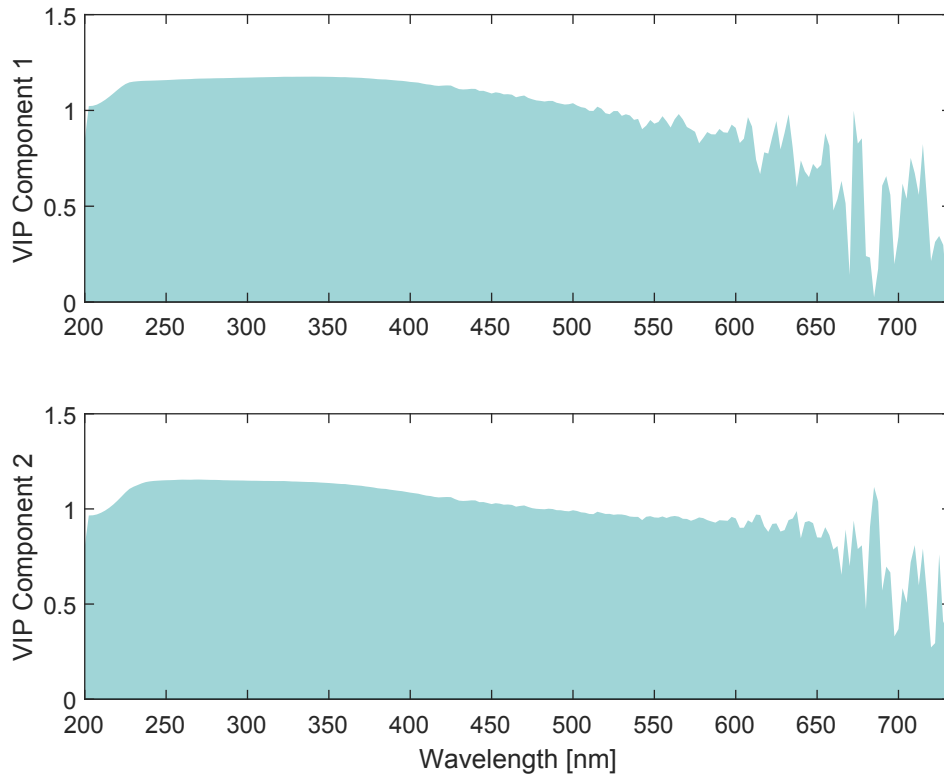


Figure A6. Relationship between SUVA and discharge at the study site show typical behavior explained by the dominant source layer concept (Ledesma *et al.*, 2018a).

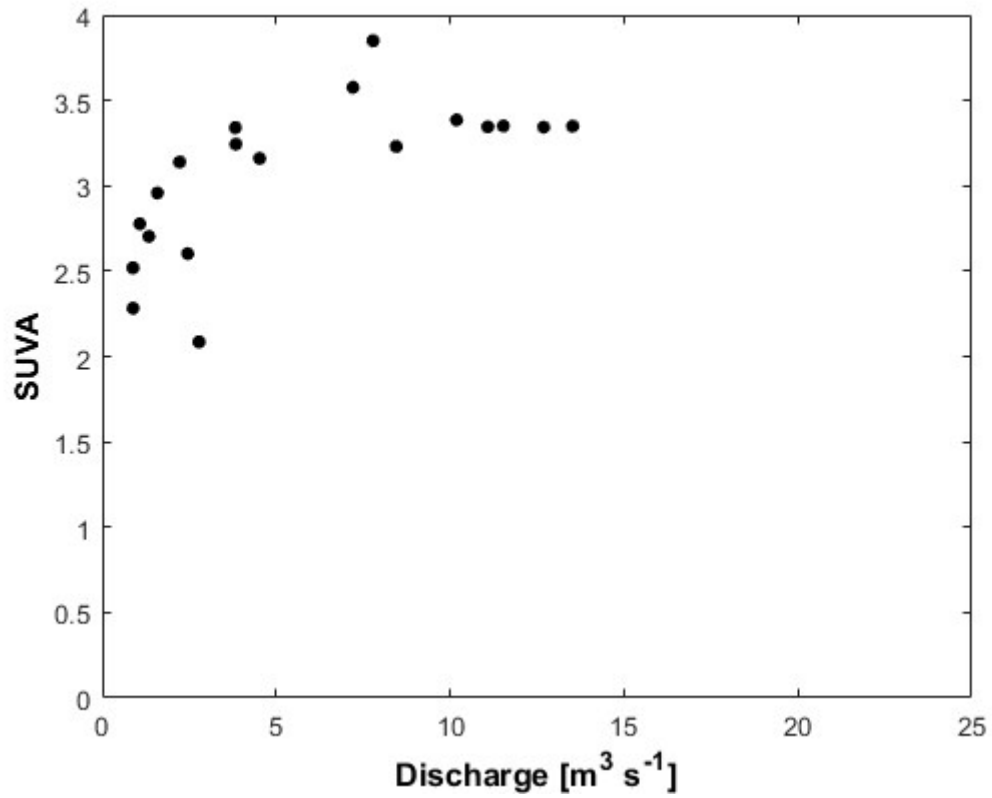


Figure A7. Difference in DOC concentration when comparing (subtracting) continuous absorbance-based estimates of DOC concentration with linearly-interpolated (grab sample) DOC concentration.

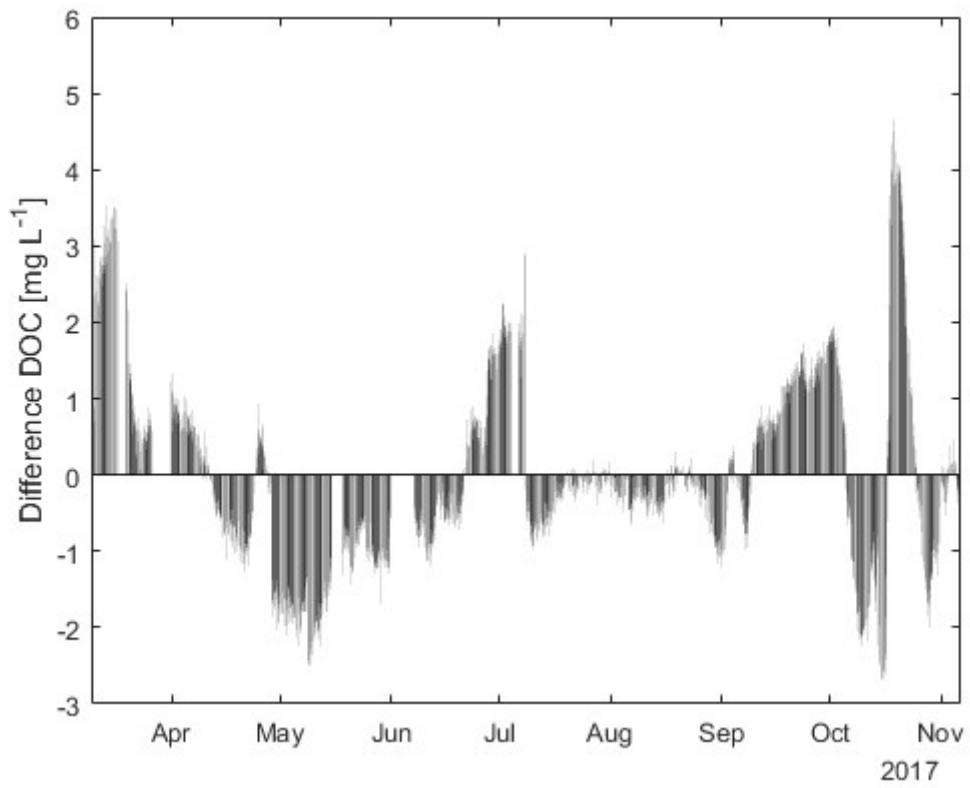


Table A1. Experimental data used to obtain correction coefficients to correct the fDOM measurements by applying equations 2a, 2b and 3. Correction functions are displayed in figure A2.

	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Abs ₂₅₄ [m ⁻¹]	92.47	76.85	61.87	51.57	42.87	35.36
Abs ₃₆₅ [m ⁻¹]	19.57	16.29	12.15	10.17	8.39	6.97
Abs ₄₈₀ [m ⁻¹]	2.90	3.87	1.81	1.51	1.26	1.01
Attenuation [%]	22.79	20.71	14.84	12.58	10.51	8.78
fDOM _{meas} [QSU]	86.14	76.95	66.75	58.09	50.15	42.28
Temp [dC]	16.18	17.58	18.43	18.92	19.34	19.73

Table A2. Specifications of the PLS model based on the absorbance spectra.

Component	R2X	R2X(cum)	Eigenvalue	R2Y	R2Y(cum)	Q2	Limit	Q2(cum)
1	0.803	0.803	15.3	0.809	0.809	0.76	0.05	0.76
2	0.0774	0.881	1.47	0.108	0.917	0.373	0.05	0.85