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Carbon dioxide dynamics in an agricultural headwater stream driven by hydrology and primary production

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Supplementary information

Table S1. Catchment characteristics, land use distribution and water chemistry for ten stream sites located around the city of Uppsala in a radius of 10 km (Osterman 2018)

Site	Catchment area (km^2)	Agriculture (%)	Forest (%)	Urban (%)	NO_3-N[b] (mg L^{-1})	PO_4-P[b] (mg L^{-1})	DOC[b] (mg L^{-1})	Temp[c] (°C)	pH[c] (-)	EC[c] (µS cm^{-1})	CO_2-C[c] (mg L^{-1})
1	25	52	45	2	0.3	0.05	6.6	11.8	7.6	594	2.8
2	200	42	56	1	1.6	0.02	7.9	11.5	7.4	552	4.5
3[a]	11	86	8	6	0.7	0.07	10.0	10.5	7.9	1129	2.7
4	14	56	44	0	0.7	0.10	10.8	9.8	7.9	610	3.1
5	21	46	45	5	2.7	0.04	5.7	11.4	7.9	892	2.9
6	780	35	59	2	0.4	0.01	14.6	16.4	7.8	483	2.2
7	105	30	62	6	0.2	0.02	10.9	14.0	7.8	678	3.0
8	23	39	59	0	0.6	0.24	15.6	11.9	7.7	810	4.3
9	740	35	63	1	0.3	0.02	13.8	16.4	7.9	585	1.8
10	210	39	57	1	0.1	0.01	12.4	14.2	7.4	719	4.6
Median	**65**	**41**	**57**	**2**	**0.5**	**0.03**	**10.9**	**11.9**	**7.8**	**644**	**3.0**

[a]The SBM catchment
[b]Median values based on eight sampling occasions during June-November 2017
[c]Based on one sampling occasion, June 21 2018

Table S2. Separation of hydrological periods used for evaluation of the stream CO_2 data.

Period	Time period	Total number of days
Autumn	2017-09-26 to 2017-12-13	49
Snowmelt	2018-03-28 to 2018-04-13	17
Spring	2018-04-14 to 2018-07-14	91
Dry period	2018-07-15 to 2018-11-30	138

Figure S1. The v-notch weir at the outlet of the SBM catchment at the four different periods with exact photo date within brackets; A) Autumn (December 12), B) Snowmelt (April 6), C) Spring (May 4), and D) Dry period (August 7)

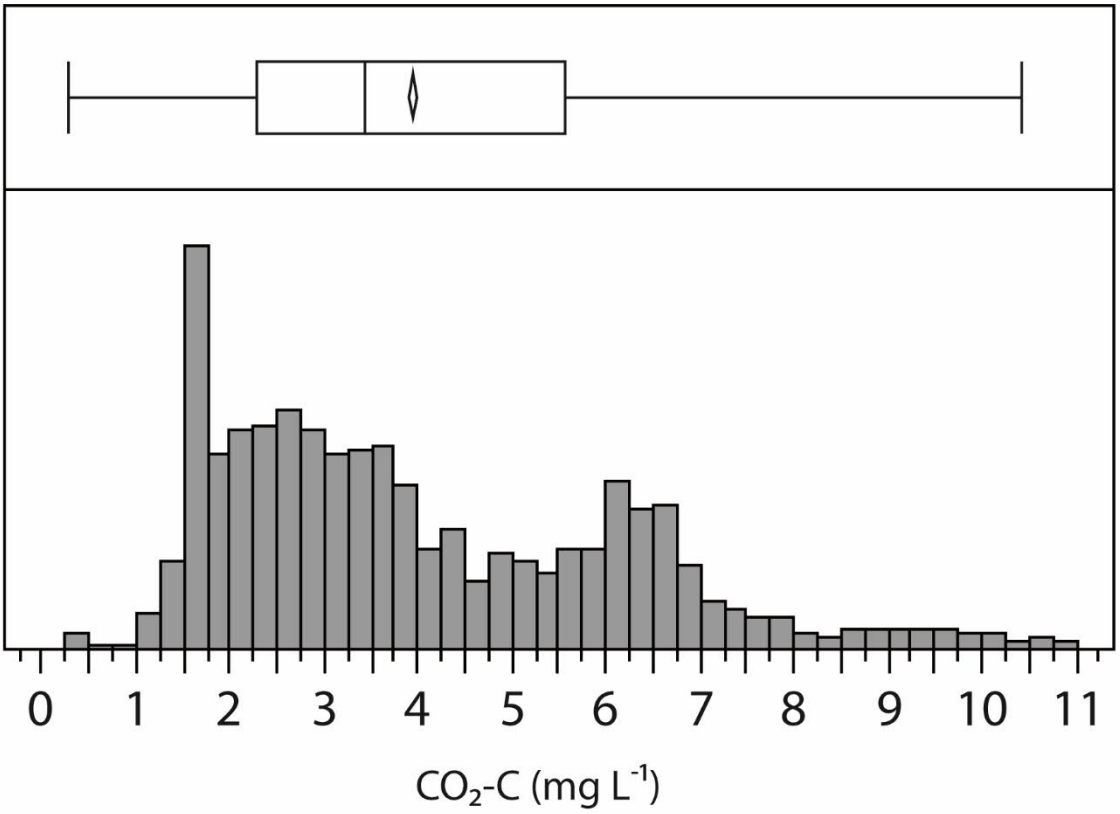

Figure S2. Distribution in stream CO_2 concentration data for the study period (n = 6713). Upper boxplot shows mean (diamond), median (line), IQR (box), 10th and 90th percentiles (whiskers).