Pastor *et al*., 2017. Local and regional drivers of headwater stream metabolism: insights from the first AIL collaborative project. Limnetica 36 (1): 67-85

SUPLEMENTARY INFORMATION

Table S1. Local characteristics of the studied streams during summer and fall 2014. *Características locales de los ríos muestreados en verano y otoño 2014*.

	Sampling period	Sampling date	ER	GPP	NEP	Slope	D	Q	T	pH	EC	DIN	DOC	Canopy cover	Coarse:fine
			mg $O_2 m^{-2} d^{-1}$	mg $O_2 m^{-2} d^{-1}$	mg $O_2 m^{-2} d^{-1}$	%	m	L/S	ºC		µS/cm	µgN/L	mg/L	%	
TAJ	Summer	31-Aug	3.21	0.53	-2.68	0.65	0.18	23.9	14.5	7.8	594	3196	1.1	45	0.8
BLA	Summer	25-Aug	2.71	4.33	1.62	2.50	0.06	9.1	23.1	8.5	481	527	1.9	15	n.a.
CAR	Summer	8-Aug	0.72	0.41	-0.31	0.50	0.16	7.5	19.6	7.7	967	2152	1.9	n.a.	1.1
BIS	Summer	6-Sep	7.14	0.06	-7.08	2.85	0.14	14.4	15.4	8.4	353	547	0.8	54	n.a.
CAS	Summer	27-Aug	7.24	0.98	-6.26	6.23	0.12	14.2	18.2	8.1	500	169	2.3	87	4.6
PAU	Summer	20-Aug	4.32	0.55	-3.77	4.50	0.12	30.8	11.4	8.3	359	178	2.9	48	7.7
MAU	Summer	17-Sep	4.79	2.07	-2.72	7.34	0.07	3.8	15.5	8.2	468	9480	2.1	66	24.0
REI	Summer	5-Sep	1.85	n.a.	n.a.	2.88	0.12	18.3	20.1	8.1	781	3135	2.4	43	8.3
GER	Summer	21-Aug	8.05	0.28	-7.77	4.90	0.06	5.5	12.6	7.6	208	1616	2.7	78	0.4
LLEM	Summer	18-Sep	3.28	0.24	-3.04	1.30	0.18	19.3	17.5	7.9	515	927	1.0	68	5.3
TAJ	Fall	15-Oct	0.93	0.16	-0.77	0.65	0.14	24.9	12.7	7.4	632	2856	0.9	n.a.	0.8
CAR	Fall	8-Nov	0.93	0.42	-0.51	0.50	0.16	9.7	10.3	7.7	1060	5747	1.9	54	0.9
BIS	Fall	4-Oct	14.20	0.19	-14.01	2.85	0.14	25.8	13.4	8.2	337	512	1.1	46	n.a.
CAS	Fall	12-Dec	4.64	0.12	-4.52	6.23	0.10	7.4	7.4	8.1	556	445	1.4	59	3.6
PAU	Fall	21-Oct	3.61	0.38	-3.22	4.50	0.11	14.1	7.1	8.5	439	279	1.8	38	10.5
REI	Fall	23-Oct	2.13	1.25	-0.87	2.88	0.15	5.5	16.5	8.0	728	1288	1.6	60	7.0
LLEM	Fall	26-Nov	2.62	0.52	-2.10	1.30	0.12	11.2	11.8	8.0	512	2372	1.2	22	7.3

Table S2. Regional characteristics of the studied streams. *Características regionales de los ríos de estudio.*

Stream	Ecoregion	Catchment area km^2	Elevation m	MAP mm	MAT ºC	ADP days	P30d mm	T30d ºC
TAJ	ICF	62.1	1140	592	11	56	1	21
BLA	ICF	11.2	1089	472	13	51	0	24
CAR	MF	64.4	326	506	14	3	32	22
BIS	CMF	17.1	325	1075	12	24	22	15
CAS	MF	1.5	373	974	13	5	224	21
PAU	PCMF	5.9	1371	1184	9	0	130	19
MAU	EBF	3.8	14	1185	10	n.a.	n.a.	n.a.
REI	MF	22.7	216	538	16	13	12	23
GER	EBF	6.2	294	918	9	2	130	18
LLEM	MF	27.9	299	1009	14	0	177	23

Table S3. Correlation matrix among the studied variables. *Matriz de correlaciones entre los ríos de estudio.*

Variables	Slope	D	Q	Tw	pH	EC	DIN	DOC	Canopy cover	Coarse: fine	Impacted: reference	Area	Elevation	MAP	MAT	ADP	P30d	T30d
	%		L/s	ºC		µS/cm	µg N/L	mg/L	%			Km2	m	mm	ºC	days	mm	ºC
Slope	**1.00**	-0.62	-0.37	-0.09	0.41	-0.44	0.04	0.51	0.45	0.57	-0.61	-0.82	-0.34	0.64	-0.39	-0.21	0.58	-0.17
D	-0.62	**1.00**	0.51	-0.05	-0.35	0.51	-0.08	-0.54	0.09	-0.40	0.38	0.69	0.06	-0.22	0.39	-0.01	-0.10	0.07
Q	-0.37	0.51	**1.00**	-0.06	-0.09	-0.05	-0.29	-0.09	-0.14	-0.31	0.23	0.31	0.66	-0.07	-0.16	0.02	0.04	0.26
Tw	-0.09	-0.05	-0.06	**1.00**	0.16	0.04	0.02	0.08	-0.06	0.14	0.00	-0.04	-0.24	-0.34	0.40	0.49	-0.21	0.85
pH	0.41	-0.35	-0.09	0.16	**1.00**	-0.32	-0.29	0.22	-0.37	0.59	-0.82	-0.71	0.17	0.37	-0.06	0.27	-0.01	0.17
EC	-0.44	0.51	-0.05	0.04	-0.32	**1.00**	0.38	-0.15	-0.13	-0.20	0.60	0.66	-0.21	-0.60	0.64	-0.03	-0.39	0.00
DIN	0.04	-0.08	-0.29	0.02	-0.29	0.38	**1.00**	0.05	0.09	0.56	0.53	0.33	-0.39	-0.05	-0.07	0.00	-0.33	-0.02
DOC	0.51	-0.54	-0.09	0.08	0.22	-0.15	0.05	**1.00**	0.22	0.23	-0.28	-0.49	0.02	0.11	-0.24	-0.20	0.25	0.34
Canopy cover	0.45	0.09	-0.14	-0.06	-0.37	-0.13	0.09	0.22	**1.00**	-0.07	-0.07	-0.20	-0.47	0.26	-0.13	-0.45	0.75	-0.06
Coarse:fine	0.57	-0.40	-0.31	0.14	0.59	-0.20	0.56	0.23	-0.07	**1.00**	-0.42	-0.54	-0.24	0.50	-0.19	-0.10	-0.03	0.06
Impacted: reference	-0.61	0.38	0.23	0.00	-0.82	0.60	0.53	-0.28	-0.07	-0.42	**1.00**	0.99	0.18	-0.72	0.03	0.29	-0.47	0.06
Area	-0.82	0.69	0.31	-0.04	-0.71	0.66	0.33	-0.49	-0.20	-0.54	0.99	**1.00**	0.19	-0.56	0.20	0.17	-0.53	0.01
Elevation	-0.34	0.06	0.66	-0.24	0.17	-0.21	-0.39	0.02	-0.47	-0.24	0.18	0.19	**1.00**	-0.20	-0.36	0.30	-0.13	0.11
MAP	0.64	-0.22	-0.07	-0.34	0.37	-0.60	-0.05	0.11	0.26	0.50	-0.72	-0.56	-0.20	**1.00**	-0.55	-0.42	0.54	-0.31
MAT	-0.39	0.39	-0.16	0.40	-0.06	0.64	-0.07	-0.24	-0.13	-0.19	0.03	0.20	-0.36	-0.55	**1.00**	0.01	-0.22	0.17
ADP	-0.21	-0.01	0.02	0.49	0.27	-0.03	0.00	-0.20	-0.45	-0.10	0.29	0.17	0.30	-0.42	0.01	**1.00**	-0.51	0.42
P30d	0.58	-0.10	0.04	-0.21	-0.01	-0.39	-0.33	0.25	0.75	-0.03	-0.47	-0.53	-0.13	0.54	-0.22	-0.51	**1.00**	-0.12
T30d	-0.17	0.07	0.26	0.85	0.17	0.00	-0.02	0.34	-0.06	0.06	0.06	0.01	0.11	-0.31	0.17	0.42	-0.12	**1.00**

Table S4. Sensitivity of ER, GPP and NEP estimates to variation in k_{600}, examined at various levels of k_{600} percent change (±1%, ±5% and ±25%). *Sensibilidad de las estimaciones de RE, PPB y producción ecosistémica neta en la variación de k_{600}, examinada a varios niveles de porcentaje de cambio (±1%, ±5% y ±25%).*

Sampling period	**ER (± 1% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**GPP (± 1% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**NEP (± 1% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**ER (± 5% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**GPP (± 5% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**NEP (± 5% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**ER (± 25% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**GPP (± 25% k_{600} change)** mg $O_2m^{-2}d^{-1}$		**NEP (± 25% k_{600} change)** mg $O_2m^{-2}d^{-1}$	
	diff	%	diff	%	diff	%	diff	%	diff	%	diff	%	diff	%	diff	%	diff	%
Summer	0.04	1.1	0.04	6.6	0.00	0.0	0.17	5.2	0.06	10.9	0.11	4.0	0.81	25.3	0.17	32.3	0.64	23.9
Summer	0.03	1.3	2.32	53.6	2.29	141.1	0.15	5.5	2.59	59.8	2.44	150.7	0.72	26.6	3.94	91.0	3.22	198.8
Summer	0.04	5.0	0.00	0.1	0.04	11.4	0.06	8.5	0.01	3.1	0.05	15.5	0.19	26.0	0.08	18.4	0.11	36.1
Summer	0.08	1.1	0.07	120.2	0.15	2.1	0.37	5.1	0.07	112.2	0.43	6.1	1.81	25.4	0.04	72.0	1.86	26.2
Summer	0.02	0.2	0.05	5.2	0.07	1.1	0.31	4.2	0.01	1.2	0.32	5.1	1.76	24.3	0.18	18.8	1.57	25.1
Summer	0.04	0.8	0.01	1.6	0.04	1.2	0.21	4.9	0.02	3.4	0.19	5.2	1.10	25.5	0.16	28.5	0.95	25.1
Summer	0.32	6.7	0.46	22.3	0.14	5.2	0.52	10.9	0.56	27.1	0.04	1.4	1.53	32.0	1.06	51.0	0.28	17.6
Summer	0.02	1.2	n.a.	n.a.	n.a.	n.a.	0.10	5.4	n.a.	n.a.	n.a.	n.a.	0.49	26.5	n.a.	n.a.	n.a.	n.a.
Summer	0.08	1.0	0.11	38.4	0.03	0.4	0.40	5.0	0.12	44.0	0.28	3.6	2.02	25.1	0.20	72.0	1.82	23.4
Summer	0.16	4.8	0.05	19.0	0.11	3.6	0.30	9.0	0.06	25.1	0.24	7.8	1.00	30.4	0.13	56.0	0.86	28.4
Fall	0.01	1.1	0.00	2.7	0.01	0.8	0.05	5.3	0.01	6.7	0.04	5.0	0.24	26.0	0.04	26.8	0.20	25.9
Fall	0.00	0.4	0.00	0.1	0.00	0.9	0.04	4.1	0.01	2.4	0.03	5.6	0.21	22.6	0.06	14.8	0.15	29.0
Fall	0.21	1.5	0.58	303.7	0.36	2.6	0.79	5.6	0.61	321.9	0.18	1.3	3.66	25.8	0.79	413.2	2.88	20.5
Fall	0.04	1.0	0.02	15.1	0.03	0.6	0.23	5.0	0.02	20.5	0.21	4.6	1.16	25.0	0.06	47.9	1.10	24.4
Fall	0.03	0.9	0.01	2.6	0.03	1.0	0.18	5.1	0.03	8.2	0.16	5.1	0.94	26.1	0.14	36.3	0.91	25.3
Fall	0.03	1.5	0.03	2.1	0.02	1.8	0.12	5.5	0.08	6.0	0.05	5.9	0.54	25.2	0.32	25.6	0.23	26.0
Fall	0.03	1.2	0.08	15.4	0.11	5.3	0.13	5.0	0.07	12.7	0.20	9.4	0.64	24.3	0.00	0.6	0.63	30.2

n.a. stands for not available data

k_{600} obtained from the empirical equation (2) of Raymond et al. (2012) (see methods section in the manuscript)

Figure S1. Daily O_2 curves (mg/L) for studied streams in summer. *Curvas diarias de O_2 (mg/L) para los ríos estudiados en verano.*

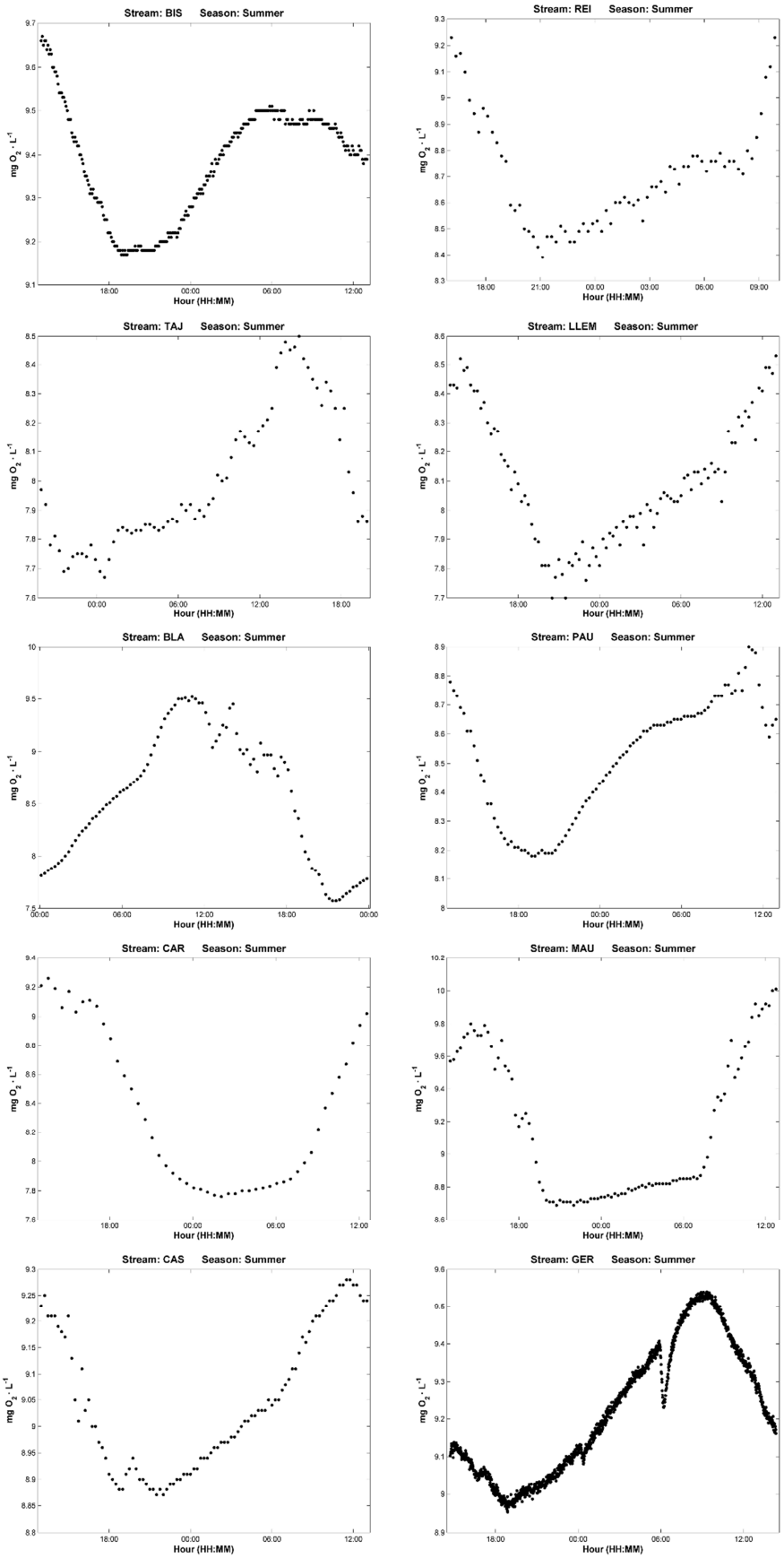

Figure S2. Daily O2 curves (mg/L) for studied streams in fall. *Curvas diarias de O_2 (mg/L) para los ríos estudiados en otoño.*