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Corrigendum to "Dissolved CH_4 coupled to photosynthetic picoeukaryotes in oxic waters and to cumulative chlorophyll *a* in anoxic waters of reservoirs" published in Biogeosciences, 17, 3223–3245, 2020

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In the paper we have detected the following error: some values of the chlorophyll *a* concentration during the mixing period were wrong in the database. The changes in the chl *a* concentration do not affect the vertical profiles shown in Figs. 2–4 and in Figs. S1–S9, but these changes require revision in Table 2 (column: "Chl *a*"). With the corrected values, the relationship between the concentrations of CH_4 and chl *a* improved during the mixing period, which is explained in Sect. 3.2.2 and shown in Table 3 (row "Chl *a* concentration") and Fig. 8a. With the corrected values, the concentrations of CH_4 and chl *a* during the mixing period were significantly related. Consequently, in this section, the statement

"During the mixing period, the only significant predictor of the dissolved CH_4 concentration was the abundance of photosynthetic picoeukaryotes (Fig. 8b)."

should be replaced as follows:

"During the mixing period, the chl *a* concentration and the abundance of photosynthetic picoeukaryotes were also significantly related to the dissolved CH_4 concentration (Fig. 8a and b)."

Regarding the general model for CH_4 concentration presented in Sect. 3.2.3, the statement

"The function of this model $\log_{10}CH_4 = -2.02 + 0.05\,\text{Temperature} + e^{(7.73/\text{mean depth})} - e^{(-0.05\log_{10}(\text{chl } a))}$. This GAM had a fit deviance of 69.3 % and an explained variance (adjusted R^2) of 68 % (Table S3)."

should be replaced by

"The function of this model $\log_{10}CH_4 = -2.03 + 0.05\,\text{Temperature} + e^{(7.64/\text{mean depth})} - e^{(-0.34\log_{10}(\text{chl } a))}$. This GAM model had a fit deviance of 75.2 % and an explained variance (adjusted R^2) of 74 % (Table S3)".

The corrected Table 2 is as follows.

Table 2. Sampling date; mean values of the DOC, TN, and TP concentrations; DIN : TP ratio; and chlorophyll *a* concentration in the water column of the studied reservoirs during the stratification and the mixing period.

Reservoir	Period	Sampling date	DOC ($\mu mol\,C\,L^{-1}$)	TN ($\mu mol\,N\,L^{-1}$)	TP ($\mu mol\,P\,L^{-1}$)	DIN : TP ($\mu mol\,N : \mu mol\,P$)	Chl *a* ($\mu g\,L^{-1}$)
Cubillas	Stratification	15 Jul 2016	172.1	60.4	1.84	23	17.8
	Mixing	6 Feb 2017	240.5	115.4	0.78	111	8.4
Colomera	Stratification	22 Jul 2016	99.4	181.4	0.78	236	2.1
	Mixing	7 Mar 2017	123.3	112.5	0.44	291	0.7
Negratín	Stratification	27 Jun 2016	109.7	21.2	0.80	23	1.2
	Mixing	16 Feb 2017	148.9	19.7	0.24	65	0.6
La Bolera	Stratification	28 Jun 2016	123.7	17.3	0.61	12	2.0
	Mixing	8 Apr 2017	107.4	34.4	0.15	176	3.3
Los Bermejales	Stratification	7 Sep 2016	94.2	30.4	0.42	52	1.8
	Mixing	17 Mar 2017	101.5	30.6	0.31	88	1.1
Iznájar	Stratification	9 Sep 2016	116.8	278.5	0.39	675	5.1
	Mixing	15 Mar 2017	147.5	298.7	1.16	392	13.1
Francisco Abellán	Stratification	28 Sep 2016	90.6	27.8	0.28	79	1.9
	Mixing	21 Mar 2017	118.0	29.2	0.47	63	1.1
Béznar	Stratification	7 Oct 2016	74.3	74.2	0.68	103	6.0
	Mixing	23 Feb 2017	121.6	113.0	0.95	104	9.8
San Clemente	Stratification	17 Jul 2017	104.1	32.0	0.39	39	3.5
	Mixing	28 Mar 017	119.4	35.9	0.21	145	3.8
El Portillo	Stratification	18 Jul 2017	78.0	22.8	0.17	103	2.4
	Mixing	30 Mar 2017	76.4	34.4	0.26	108	1.2
Jándula	Stratification	24 Jul 2017	359.9	37.2	0.78	43	2.3
	Mixing	5 Apr 2017	399.4	46.2	0.37	103	1.7
Rules	Stratification	10 Jul 2017	81.2	23.2	0.21	82	3.7
	Mixing	7 Apr 2017	68.5	38.0	0.43	143	1.2

The correct Table 3 is as follows.

Table 3. Equations for the relationships between the phytoplanktonic variables and the dissolved CH_4 concentration in the oxic waters. n.m. means not measured.

Driver	Period	n	Equation	Adjusted R^2	p value
Chl a concentration	Stratification + mixing	160	$CH_4\ (\mu mol\,L^{-1}) = 0.11\ chl\ a^{0.63}$	0.23	<0.001
($\mu g\,L^{-1}$)	Stratification	78	$CH_4\ (\mu mol\,L^{-1}) = 0.14\ chl\ a^{0.97}$	0.40	<0.001
	Mixing	82	$CH_4\ (\mu mol\,L^{-1}) = 0.07\ chl\ a^{0.24}$	0.11	<0.01
Gross primary production	Stratification	12	Marginally significant		0.077
(GPP; $g\,O_2\,m^{-3}\,d^{-1}$)	Mixing	n.m.			
Net ecosystem production	Stratification	12	Not significantly related		0.536
(NEP; $g\,O_2\,m^{-3}\,d^{-1}$)	Mixing	n.m.			
Photosynthetic	Stratification + mixing	160	$CH_4\ (\mu mol\,L^{-1}) = 0.02\ PPEs^{0.35}$	0.19	<0.001
picoeukaryotes' (PPEs') abundance	Stratification	78	$CH_4\ (\mu mol\,L^{-1}) = 0.0072\ PPEs^{0.65}$	0.57	<0.001
($cells\,mL^{-1}$)	Mixing	82	$CH_4\ (\mu mol\,L^{-1}) = 0.032\ PPEs^{0.16}$	0.12	<0.001
Cyanobacteria (CYA) abundance	Stratification + mixing	160	$CH_4\ (\mu mol\,L^{-1}) = 0.00099\ CYA^{0.53}$	0.19	<0.001
($cells\,mL^{-1}$)	Stratification	78	$CH_4\ (\mu mol\,L^{-1}) = 0.0017\ CYA^{0.53}$	0.17	<0.001
	Mixing	82	Not significantly related		0.666

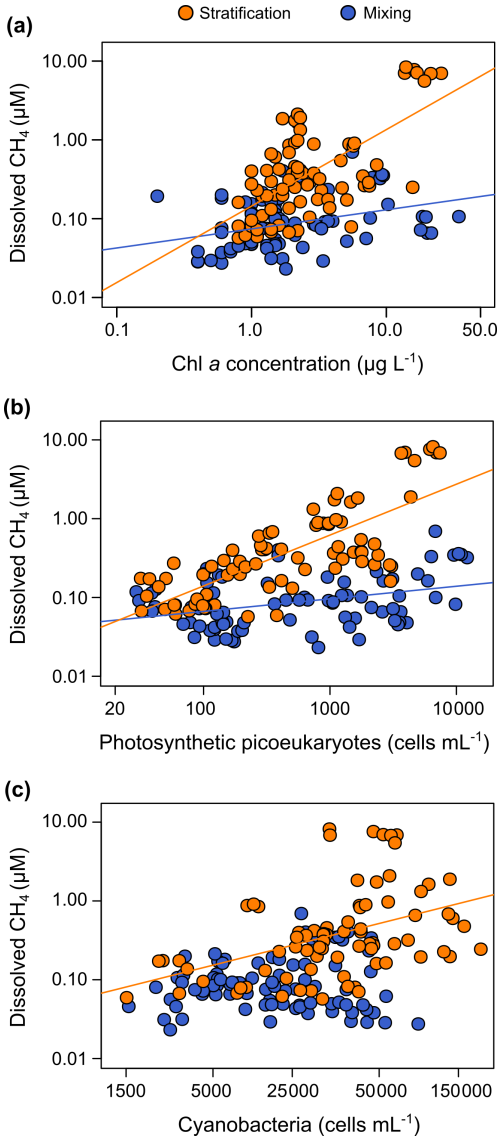

Figure 8. Phytoplanktonic variable coupled with the dissolved CH_4 concentration in the oxic waters. **(a)** The dissolved CH_4 concentration was significantly related to the chlorophyll *a* concentration during the stratification period (p value <0.001), and during the mixing period (p value < 0.01). The relationship was a power function during the stratification period ($CH_4 = 0.14$ chl $a^{0.97}$, $n = 78$, adjusted $R^2 = 0.40$) and during the mixing period (CH_4, µmol $L^{-1} = 0.07$ chl $a^{0.24}$; $n = 82$, adjusted $R^2 = 0.11$). **(b)** Relationships between dissolved CH_4 concentration and the abundance of photosynthetic picoeukaryotes (PPEs) during the stratification period ($CH_4 = 0.0072$ $PPEs^{0.65}$, $n = 78$, adjusted $R^2 = 0.55$, p value <0.001) and the mixing period ($CH_4 = 0.032$ $PPEs^{0.16}$, $n = 82$, adjusted $R^2 = 0.12$, p value <0.001). **(c)** Relationship between dissolved CH_4 concentration and the cyanobacteria abundance (CYA; cells mL^{-1}). A power function described the relationship between the dissolved CH_4 and the CYA during the stratification period ($CH_4 = 0.0017$ $CYA^{0.53}$, $n = 78$, adjusted $R^2 = 0.17$, p value <0.001). The relationship was not significant during the mixing period (p value $= 0.666$).