Biogeochemistry (2012) 111:715–717
DOI 10.1007/s10533-012-9780-6

ERRATUM

Erratum to: An in-depth look into a tropical lowland forest soil: nitrogen-addition effects on the contents of N_2O, CO_2 and CH_4 and N_2O isotopic signatures down to 2-m depth

Birgit Koehler · Marife D. Corre · Kristin Steger · Reinhard Well · Erwin Zehe · Juvia P. Sueta · Edzo Veldkamp

Published online: 24 August 2012

Erratum to: Biogeochemistry
DOI 10.1007/s10533-012-9711-6

The authors would like to make the following corrections to the online published article:

In the calculations of the depth-integrated area-based gas contents in soil air and water we conducted a mistake by summing up the volume-based gas contents and multiplying them with the volumes of the topsoil and subsoil. This resulted in overestimations of the respective values in Table 2. We corrected the integration over depth using the trapezoidal rule, and give the resulting values in the corrected Table 2. A few slight changes in the result paragraphs about the soil gaseous contents are highlighted in bold font in the text below, and the reader is asked to refer to these instead of to the ones in the article. We may not anymore support the statement in the abstract that 'the pronounced seasonality in soil respiration was largely attributable to enhanced topsoil respiration' because in the corrected analysis also the subsoil CO_2-C contents in the soil air of the control plots were larger during wet than dry season, and the fractions of CO_2-C contents in the topsoil were not consistently larger during wet than dry season as previously the case. The respective three sentences in the discussion about the dynamics of carbon dioxide in the control plots (i.e. 'Soil respiration in the studied lowland forest' to 'as

The online version of the original article can be found under doi:10.1007/s10533-012-9711-6.

B. Koehler (✉) · K. Steger
Department of Limnology, Evolutionary Biology Centre, Uppsala University, Norbyvägen 18 D, 75236 Uppsala, Sweden
e-mail: koehlerbirgit@gmail.com

M. D. Corre · J. P. Sueta · E. Veldkamp
Buesgen Institute, Soil Science of Tropical and Subtropical Ecosystems, Georg-August-University of Goettingen, Buesgenweg 2, 37077 Goettingen, Germany

Present Address:
K. Steger
Indo-German Centre for Sustainability, Indian Institute of Technology Madras, Chennai 600 036, India

R. Well
Johann Heinrich von Thünen-Institut, Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute of Agricultural Climate Research, Bundesallee 50, 38116 Braunschweig, Germany

E. Zehe
Karlsruhe Institute of Technology, Institute of Water Resources and River Basin Management, Kaiserstrasse 12, 76129 Karlsruhe, Germany

Corrected Table 2 Mean (± SE) N_2O-N, CO_2-C and CH_4-C contents in soil air and water of the topsoil (0.05–0.40 m depth) and subsoil (0.40–2.00 m depth) during dry season (DS) and wet season (WS) in the control and 9–11-year N-addition plots

	N_2O-N (μg m^{-2})		CO_2-C (mg m^{-2})		CH_4-C (μg m^{-2})	
	DS	WS	DS	WS	DS	WS
Control						
Contents in soil air						
Topsoil	60.54 ± 1.89	62.54 ± 4.66	135.66 ± 17.49	265.42 ± 38.45	110.54 ± 6.07 (119.75 ± 2.01)	75.61 ± 5.29 (82.56 ± 3.95)
Subsoil	149.09 ± 8.45	170.85 ± 8.36	616.11 ± 129.89	1,066.01 ± 165.36	199.61 ± 8.88 (233.48 ± 32.22)	150.48 ± 4.17 (182.67 ± 19.15)
Fraction located in the topsoil (%)	28.94 ± 0.71	26.81 ± 1.63	18.83 ± 3.02	20.61 ± 4.10	35.65 ± 1.65 (34.43 ± 2.84)	33.42 ± 2.17 (31.52 ± 3.41)
Contents in soil water						
Topsoil	37.21 ± 1.96	62.41 ± 4.46	115.46 ± 17.13	381.26 ± 50.63	3.74 ± 0.11 (4.02 ± 0.20)	4.25 ± 0.31 (4.52 ± 0.26)
Subsoil	190.02 ± 9.42	286.46 ± 11.91	1,202.38 ± 245.47	2,592.22 ± 412.29	13.62 ± 0.94 (15.63 ± 2.15)	13.58 ± 0.61 (16.23 ± 1.80)
Fraction located in the topsoil (%)	16.39 ± 0.60	17.96 ± 1.63	9.27 ± 1.93	13.57 ± 3.16	21.65 ± 0.89 (20.81 ± 1.53)	23.85 ± 1.50 (22.16 ± 2.54)
Nitrogen addition						
Contents in soil air						
Topsoil	51.16 ± 3.55	88.99 ± 7.37	125.27 ± 14.77	270.47 ± 29.14	80.05 ± 8.26 (81.85 ± 6.53)	66.71 ± 5.99 (70.09 ± 4.30)
Subsoil	154.70 ± 19.90	281.22 ± 20.16	518.31 ± 32.10	1,054.21 ± 175.62	158.07 ± 18.36 (160.75 ± 15.56)	129.77 ± 16.06 (147.38 ± 9.52)
Fraction located in the topsoil (%)	25.09 ± 1.04	24.15 ± 2.32	19.34 ± 1.03	20.79 ± 1.22	33.69 ± 0.94 (33.81 ± 1.01)	34.14 ± 1.63 (32.29 ± 1.90)
Contents in soil water						
Topsoil	43.00 ± 2.31	78.09 ± 7.45	148.13 ± 24.42	330.15 ± 37.69	3.84 ± 0.24 (3.98 ± 0.26)	3.35 ± 0.38 (3.59 ± 0.25)
Subsoil	237.20 ± 14.50	450.10 ± 38.74	1,212.34 ± 110.81	2,451.40 ± 373.71	12.78 ± 1.14 (13.14 ± 0.81)	10.63 ± 1.62 (12.14 ± 1.10)
Fraction located in the topsoil (%)	15.43 ± 1.15	14.95 ± 1.90	10.77 ± 0.75	12.11 ± 1.13	23.23 ± 1.38 (23.32 ± 1.42)	24.19 ± 0.96 (22.92 ± 1.26)

To calculate contents in soil water, equilibrium between gaseous and aqueous phase was assumed. For CH_4-C, analyses were conducted separately excluding the occasional high concentrations (please see the "Statistical analyses" section and Table 3) and for the whole data set (values given in parentheses)

well as fine root growth, biomass and turnover during wet than dry season at our site') are therefore not anymore valid. Also, in the second to last sentence of the discussion section about methane the information in brackets is not anymore valid but this does not change the interpretation. Apart from these, the results, interpretations and conclusions remain unchanged throughout the article.

Abstract

Long-term N-addition did not affect dry-season soil N_2O-N contents, **increased** wet-season soil N_2O-N contents, did not affect ^{15}N signatures of NO_3^-, and reduced wet-season ^{15}N signatures of N_2O compared to the control plots. (…) The N-addition plots showed reduced dry-season **top**soil CH_4-C contents and threshold CH_4 concentrations were reached at a shallower depth compared to the control plots, revealing an N-induced stimulation of methanotrophic activity.

Results

Nitrous oxide

In both treatments, N_2O-N contents were generally larger during wet than dry season ($P < 0.047$, except for the contents in topsoil air in the control plots with $P = 0.729$; Table 2). Dry-season N_2O-N contents did not differ between treatments but wet-season N_2O-N contents were **larger** in the N-addition compared to the control plots in **soil air ($P < 0.039$) and in subsoil water ($P = 0.009$)**. The fractions of N_2O-N contents located in the topsoil did not differ seasonally in either the control or N-addition plots. **During dry season, the N_2O-N fractions located in the topsoil were larger in the control than in the N-addition plots ($P = 0.039$; Table 2).** In both treatments and seasons, the water phase contained **52–60** % of the overall soil N_2O-N contents (Table 2).

Carbon dioxide

In both treatments, topsoil CO_2-C contents were larger during wet than dry season ($P < 0.044$). The same was the case for the subsoil of the control plots ($P < 0.021$), and, albeit not significant on the 5 % significance level, a similar trend appeared in the subsoil of the N-addition plots ($P = 0.089$ in air and $P = 0.052$ in water). Seasonal soil CO_2-C contents were unaffected by N-addition (Table 2). **In the control plots, the fractions of CO_2-C content located in the topsoil water were larger during wet than dry season ($P = 0.044$). They did not differ seasonally in the subsoil water or in soil air, and did not differ in any season or depth in the N-addition plots** or between treatments. In both treatments and seasons, the water phase contained **64–69 %** of the overall soil CO_2-C contents (Table 2).

Methane

In both treatments, CH_4-C contents in soil air were larger during dry than wet season ($P < 0.028$ in the topsoil and $P < 0.030$ in the subsoil; Table 2) while the contents in soil water did not differ seasonally. Dry-season CH_4-C contents in **top**soil air were smaller in the N-addition than the control plots by **28** % ($P = 0.016$). Dry-season CH_4-C contents **in subsoil air and water** and wet-season CH_4-C contents did not differ between treatments (Table 2). The fractions of CH_4-C content located in the topsoil did not differ seasonally in either the control or N-addition plots, and did not differ between treatments (Table 2). In both treatments and seasons, the water phase contained **5–7** % of the overall soil CH_4-C contents (Table 2).