

BG-2017-22

Dear Dr Bussmann

Thank you for the revision of your MS and your letter that was forwarded to me by the editorial manager. From my reading of this new version, I acknowledge the important changes in the MS that considerably improve the scientific argumentation. I think your MS has reached the overall scientific quality to be published in Biogeosciences, and this is why I will recommend publication. However, the publication can occur only after some more serious revision of the language. Indeed, the poor editing quality of your MS again disappointed me, and I find it hard to believe that it has been edited by a professional service as you mention in your letter (otherwise, I would recommend moving to another editing service). Like you, I am not English native speaker, and I understand it is not easy to publish in English. However, I cannot accept that the poor quality of language alters the scientific message. The problem is that at many places in your MS (see list below), the text seems more spoken language than written language. The scientific meaning becomes unclear and/or imprecise. A detailed language editing is absolutely necessary to make scientific statements unambiguous before publication.

I would like to point out that, contrary to what you mention in your letter, anonymous referee #3 was the same person during the first and second round of the review process. Her/his evaluation was much more severe the second time, because she/he considered you did not satisfactorily and seriously address her/his comments. Please keep in mind that reviewing is a volunteer time-consuming work. As associate editor, I ask you to consider my comments more seriously this time. Below, some citations from your MS that suggest it has not been edited by a professional service as you pretend. Again, I am not English native, so this list is probably not exhaustive and the entire MS needs language editing.

Looking forward a revised version of your MS,
With best regards

Gwenaël Abril, BG associate editor

L24 (and throughout the MS): “a higher “estimated diversity” in the “riverine water” than in the “polar water”. Ambiguous use of quotation marks; quotation marks can be used once a time when defining a term that will appear later in the MS, but not throughout the MS.

L46 “global runoff” : change to “global river runoff”
L61: “an important effect on reducing the greenhouse effect considerably” > please rephrase

L62 “the final sink for methane before it is released to the atmosphere” awkward sentence, what is the meaning of “final” here?

L95 "as modified from (Caspers, 1959)." Please refer to how to cite literature and use parentheses (same comment at many places in the MS)

107 "were calculated by differential weighing" >I suggest: "were determined gravimetrically"

L214: change "square" to "rectangle"

L234: "warm freshwater at the surface (0–5 m), followed by a mixed water body" not clear what "followed" means here... below? Above?

L235 "we found cold and saline water (= "polar water")" please make a sentence

L238 "the subsequent stations" unclear, please specify

L248 "When applying our water masses (riverine, mixed and polar), we observed..." awkward sentence

L257 "'riverine' sample) and excluding the very high water values of station TIII-1304; which made the correlation much stronger" Ambiguous use of quotation marks and semicolon. What made the correlation stronger, the high value or to exclude the high value?

L272 "The fractional turnover (k') is a measure of the relative activity of the MOBs" > how was k' calculated?

L279 "The abundance of MOB can either be given either in cell numbers or as relative abundance" awkward sentence

L290 "Additionally, the "estimated diversity", as OTUs per station," ambiguous use of quotation marks

L334 "reported a range of 10 to 100 nmol L-1 (estimated from Figure 2 in (Sapart et al., 2017)." inappropriate use of parentheses (also at many other places in the MS)

L339: "A more detailed comparison with temperate and tropical environments is discussed below, in the context of the diffusive methane flux, as most reviews rely on the methane emissions rather than on the concentrations." What reviews? Please add references

L345 "seafloor methanogenesis resulting from the decomposition of organic carbon" this is a truism as methanogenesis IS decomposition of OC

L347 "However, low tides, low topographic relief and low precipitation in the present study area are not favourable for a high ground water input to the Lena Delta." Low tides: do you mean low tidal amplitude? In addition explain the scientific reason for this statements.

L353 "Thus, we cannot support ebullition as a methane source." awkward sentence, please check

L365 "However, for the latter two processes, it not clear yet if this methane production will result in elevated methane concentrations in situ." Please rephrase

L368 "However, at the shallow stations (< 8 m, coastal stations of the transects), the water column was mixed; thus, sedimentary methane may diffuse into the water above." Unclear, and oversimplified statement, please rephrase.

L372 "as rivers or estuaries are thought to import methane-rich water into coastal seas." Do you mean "export" instead of "import"?

L378 "However, even this scheme does not seem applicable to our data." Please improve formulation to be more explicit

L393: "median methane oxidation rate of 0.32 nmol L-1 d-1, ranging from 0.03 to 5.7." please avoid numbers without unit

L401 "The first order rate constant used for modelling the methane flux in the Laptev Sea is estimated to range from 18116 d-1 to 11 d-1 (= 2.3×10^{-6} to 3.8×10^{-3} h-1)"

Confusing: was this rate "estimated" or "used"; avoid "=" in the text.

L407 "The influence of the methane concentration on the MOX was also most pronounced in "riverine water"" inappropriate use of quotation marks

L409 "With the described method of qPCR and the water column specific primers (Tavormina et al., 2008), the relative abundance of MOB in our study ranged from 0.05 to 0.47% (median 0.16%) which is equivalent to 4×10^4 to 3×10^6 cells per L (median of 6.3×10^4), except for the high values from station T1-1302." Confusing. What is the high value ?

L412: "; thus, they are regarded as methodological outliers" awkward sentence, please justify how such methodological problem may occur.

L422 "correlations between parameters important to heterotrophic bacteria," please rephrase, bacteria don't mind about "parameters"

L451 "Thus, the ecological traits can be described as follows:" not sure "thus" is appropriate at the beginning of a new paragraph. I suggest changing "described" to "summarized"

L454 "The relative abundance and "estimated diversity" (OTU/sample) of MOB" inappropriate use of quotation marks

L456 "the MOB in the polar population were quite efficient at reaching a MOX comparable to riverine water." Do you mean MOB population in polar waters? do you mean MOX activity, or MOX rates? do you mean comparable to MOX activity of MOB in riverine waters? Please rephrase

L469 "the classical concept of the r- and k-strategist has today been replaced by the C-S-R functional classification framework" please explain

L491 "ranging from 4–163 $\mu\text{mol m}^2 \text{d}^{-1}$." Ranging from 4 to 163 $\mu\text{mol m}^2 \text{d}^{-1}$

L494 "A comprehensive study by (Myhre et al., 2016)" inappropriate use of parentheses

L498 "(Graves et al., 2015) (Table 5Table 5)." Please edit your MS

L509 "A comprehensive study by (Myhre et al., 2016)" inappropriate use of parentheses

L509 "aquatic methane emissions is presented by (Stanley et al., 2016) and (Ortiz-Llorente and Alvarez-Cobelas, 2012). inappropriate use of parentheses. Same in many other places in the MS

L512 "as well as from tidal systems, to which the Lena Delta would be classified" "to which" is not correct

L514 "; thus they conclude" to what do "they" refer to ?

L520 and at many other places in the MS "(Borges et al., 2017;Lofton et al., 2014)" insert a space after the semicolon

L525 "A molecular approach identified the salinity, temperature and pH as the most important environmental drivers of methanogenic community composition on a global scale." Please add a reference

L534 a paragraph cannot start with "J."

L534 "he methane released by ebullition did not show any isotopic evidence of oxidation;" please provide a reference

L556 "However, one fact to be kept in mind is that our estimation is a static one" poor English

L561 "A more complex approach is taken by (Wahlström and Meier, 2014)." Poor English and inappropriate use of parentheses

L576 "as no direct dilution of riverine methane occurs;" awkward sentence, how can "dilution" be "direct" (or "indirect")?

L583 "; thus, we propose that it will compensate for any increase in methane concentrations." Not clear, is this speculation? Do you mean you "postulate"?

L585 “he stratification of the water column will be broken up and the separate water masses mixed” looks like spoken English, not written English.

Dear Gwenaël,

Please find below an email for you.

Kind regards,

Anna

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Subject: Re: bg-2017-22 (author) - manuscript files under validation

Dear Natascha,

I wanted to add some words to the editor, but pressed the wrong button....

Could you forward this to the editor?

yours sincerely

Ingeborg Bussmann

Dear Gwenael Abril,

Thank you for the valuable suggestions from you and referee 4.

The Ms now has been edited by professional service and the Ms is now better to read (at least for my feeling). The discussion on methane concentrations and methane fluxes have been completely re-written to a hopefully more coherent way, but without changing the message. In addition, in the conclusion we relate future warming in the Arctic to the methane cycle in the study area based on our discussion.

We appreciate the comments of the additional referee 4, however we also think they are rather harsh, as the 3 previous referees were more positive on the Ms and we already had incorporated their suggestions.

Nevertheless, we worked again on the discussion, polished the figures and the language and hope the Ms has improved to your satisfaction.

Yours sincerely

Ingeborg Bussmann