

Author response on Biogeosciences Discuss. ms “**Carbon isotopes and lipid biomarker investigation of sources, transport and degradation of terrestrial organic matter in the Buor-Khaya Bay, SE Laptev Sea**” by Emma Karlsson et al.

We thank the two reviewers for their thorough evaluations and are naturally glad to see such positive responses to this work. We especially acknowledge the extensive and insightful introduction and summary by Rev. 1 (Vetrov) to put this work into perspective, and the detailed response by the anonymous referee 2 in support of this paper. Before we address the specific comments we apologize for the many technical errors regarding the reference list. We recognize this as work that reviewers should be spared, and we have most humbly noted this and taken care of necessary corrections.

Below is our detailed response (normal font) and resulting revisions resulting from the review comments (*in italics*). Response to the general errors regarding the references/reference list is listed separately at the end.

SPECIFIC COMMENTS by A.Vetrov (Reviewer 1)

1. As remark could be noted, that authors don't try to estimate fractions of OM from different sources by percent of HMW n-alkanes in OM to compare that results with results obtained with isotopes consideration. We appreciate this suggestion. This is in principle possible to do. However, we believe that the value of this information would be marginal to the other proxies we are presenting because of anticipated poor constraint of the needed end-members, and that a ratio of OM/HMW n-alkanes would also not be conservative during mixing.

2. Page 3474, line 23 and further pages: To my mind it is incorrect to use “depleted d13C” as it is shift, it is better to use “depleted 13C”.

Reviewer is correct. Edited throughout manuscript.

3. Page 3469, line 11: As a rule filtration on GFF are performed by gravity with difference of levels about 2-2.5 m. As vacuum filtration was used, it is necessary to mention a value of vacuum.

This value (0.25 atmospheres) has been added according to reviewers suggestion.

SPECIFIC COMMENTS by anonymous referee (Reviewer 2)

Page 3489 Table 1 Why is there no d13C value reported for the surface water sample 50?

The omission was an oversight. A value has now been added accordingly in Table 1.

Section 3.2 and rest of the manuscript. POC and SOC in d13C-POC and d13C-SOC should be in subscript as is in the figure captions of figures 2 and 3. Idem for the D14C values reported in section 3.3

We agree. Edited throughout manuscript.

Page 3492 '(H)MW/LMW' should be '(H) HMW/LMW'3.

Edited accordingly.

Page 3496 in line with the information given about the chain length of the n-alkanoic acids, the same information should be given about the HMW n-alkanes.

This has been added according to reviewer's suggestion.

Supplementary information tables S1, S2, S3 and S4 it should be made clear that D-C24 or D-C20 are the internal standards added.

It has been clarified that the D-C24 and D-C20 are internal standards used in the table legends, according to reviewer's suggestion.

COMMENTS to errors in the references/reference list:

A.Vetrov:

*there isn't (Semiletov, 1999a, b), there is only (Semiletov, 1999);
there isn't (Semiletov et al., 2005);
page 3466, line 23: (Grigoryev, 2000) replace to (Grigoryev and Kunitsky, 2000);
there isn't (Jakobsson et al., 2004), but there is (Jakobsson et al., 2008);
there isn't (van Dongen et al., 2008a), but there are two (van Dongen et al., 2008);
there isn't (van Dongen et al., 2008b), but there are two (van Dongen et al., 2008);
there isn't (Vonk et al. 2010a,b), but there are two (Vonk et al. 2010);
there isn't (Rachold et al., 1999), there is (Rachold et al., 2000);
there isn't (Macdonald et al., 2006);
there isn't (Mayer, 1994a, b), but there are two (Mayer, 1994).*

Anonymous referee:

The whole manuscript contains a large number of errors in relation to the references. This needs to be corrected. It is for instance not clear which of the two papers published by van Dongen et al in 2008 are 2008 a and b and this is the same for the papers published by Vonk et al in 2010, Semiletov in 1999 and Mayer in 1994. In addition, in the text it is often not clear which paper the authors refer to. Again using van Dongen et al 2008 as an example a number of times in the manuscript (e.g. page 3466 line 13, page 3473 line 20, 3475 line 25 and page 3478 lines 4, 16 and 19) it is not clear if it is the van Dongen et al 2008a or b publication the authors refer to. I am also missing quite a few references such as the references to Semiletov et al. 2005, Macdonald et al. 2006 and Grigoryev 2000.

We take full responsibility for the many errors regarding the references and again apologize for this inconvenience. Semiletov, 1999b, Semiletov et al., 2005, Jakobsson et al., 2004, Rachold et al., 1999, Macdonald et al., 2006 has been added to the reference list, and Grigoryev, 2000 has been replaced to Grigoryev and Kunitsky, 2000. There is now: van Dongen et al., 2008a,b; Vonk et al. 2010a,b; Mayer, 1994a,b; Semiletov, 1999a,b.

A modest note for the record: on the confusion of the papers in the reference list that have two papers cited from the same year – these initially had superscript indices in the reference list that were lost during type set for publishing on the *Bigoeosciens Discussion* site, and were unfortunately overlooked by us during proof-reading.