

**Associate Editor Decision: Publish subject to technical corrections** (06 Feb 2018) by Jack Middelburg

Comments to the Author:

I have read your paper in detail and I am sorry to tell you that I am a little disappointed about the presentation quality since this is version 4. The science is fine but the writing needs improvement. I nevertheless have decided to accept your paper pending further technical corrections. Congratulations, but please make these corrections and try to improve your writing further. After that and editorial office corrections your paper will likely make a nice contribution to the literature.

We revised the manuscript following your suggestions below. Furthermore, we revised the writing of the whole text and have the final manuscript checked by a native speaker. The text was changed to American English.

Technical corrections:

- All through please check your use of past vs. present tense. For instance, in the abstract many sentences should have been written in past tense. – We checked and revised the tense throughout the manuscript. We used past tense for the abstract. In the Introduction background facts are presented in present tense. Past was used when referring to past events. In the Methods chapter we used the past tense to describe what was done. In the result chapter we also used past tense for the results obtained. In the discussion chapter past tense is applied to summarize results combined with present tense to explain the significance of results or to interpret results. In the Conclusion we used present tense. Text was changed to American English.
- The use of marine isotope stages and Holocene, Eemian is somewhat confusing (some section use MIS, others Eemian, different authors?) and please introduce MIS before first use, both in abstract and in main text. – In the results chapter we used only MIS, because this classification of the sample material was easier for the description of the results. We now allocated also the respective time period names, used in the introduction and discussion, to the different marine isotope stages for better orientation (headers of chapter 4, Lines 211-276). Additionally, in the Introduction and Discussion, period names are linked again to the marine isotope stages (Line 39 and Line 319). MIS was introduced now in abstract (Line 14) and main text (line 39), when mentioned for the first time.
- Line 62: are suggested to (by who??). – Changed to “might have strong effect”. Line 64.
- Line 70: On the one and on the other hand always go together – Changed as suggested. Line 70.
- Line 73: were analysed/analysed – Changed as suggested. Line 75.
- Line 141: deposits were deposited: reformulate – Changed to “Sediments ... were deposited”. Line 141.
- Line 145: grinding, samples – Changed as suggested. Line 145.
- Line 162: rpm have no meaning, use g-force – Converted with a radius of 130 mm and 2500 rpm. Line 162.

- Line 163: were measured in pore-water samples – Changed as suggested. Line 163.
- All through, use construction like from x to y and vary between x and y. Do not use a mixture.  
(there are many of these misuses) – We revised this throughout the manuscript.
- Line 208: vary between 849.1 and 27.2... – Comma was removed. Line 206.
- Line 238: all past markers were high (results so in past tense and use high rather than strongly increased, because increased from what). – Changed to: “In the MIS 3-1 section all past markers were significantly higher ... compared to the other MIS 3 deposits. Line 237-238.
- Line 243: reformulate: are indicated – Revised to “The sample from MIS 3-1 showed a free... Line 242.
- Line 344: .. 3) for the Eemian deposits (...) showed a more.... – Changed as suggested. Line 343.
- Line 367: on how the – Changed as suggested. Line 366.
- Line 488: OM with high HI.. – Changed as suggested. Line 484.
- Concentration are reported in mg/L for acetate. Is this acetate or mg C/L. I guess the former as most organic geochemist report, but many biogeochemist report on C basis. Inform the reader. – We added “and measured as mg/l acetate.” in Line 163.