



INSTITUTE OF MARINE
AND ENVIRONMENTAL SCIENCES
UNIVERSITY OF SZCZECIN

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37081 Göttingen
Germany

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Dear Dr. Lever,

We thank you for the opportunity to revise our manuscript entitled 'Controls on Palaeogene deep-sea diatom-bearing sediment deposition and comparison with shallow marine environments'. We have made all the corrections requested by the reviewer.

Yours sincerely,
Cécile Figus, on behalf of all Co-Authors

Responses to Anonymous Referee #2:

Throughout the maintext, carbon dioxide is often reported as 'CO₂' (2 is not subscripted).

This has been corrected.

Line 3: 'sediments occurrences' -> 'sediment occurrence'.

This has been corrected.

Line 10: '(...) during the diatomite gap' -> '(...) during the diatomite gap in shallow water settings'.

This sentence has been modified to add 'in shallow water settings'.

Lines 29-32: I suggest a small, additional modification aimed at improve the passage (but feel free to modify it as you prefer, considering the further reference that I included). 'Another aspect of the biological pump is the "self-sedimentation" of diatoms in the water column (i.e., diatoms seem to have developed mechanisms to accelerate gravitational mass sinking of their skeletons in the water column), leading to the burial of diatom frustules in sediments (Smetacek, 1985; Grimm et al., 1997).' -> 'Another aspect of the biological pump is represented by the processes accelerating the diatom sinking in the water column and the consequent burial of diatom frustules. Among them, the massive settling of large aggregates of bloom-forming or stratified-adapted diatoms ("self sedimentation" and "fall dump", respectively) play a prominent role in enhancing diatom-bearing sediment formation (Smetacek, 1985; Grimm et al., 1997; Kemp et al., 2000).'

The sentence has been amended.

Line 340 – typo: remove 'the' before 'present'.

This has been corrected.

Line 354 – typo: split 'thatassumes'.

This has been corrected.

Figures

Figure 1 – Nice and useful sketch! Just a few suggestions (mere formality...):

I would like to thank you for your comments. I am glad that this new figure has also been revised, as I drew it from scratch.

1) Why do you report the chemical formula of orthosilicic acid while P and N are just reported as chemical symbols? I suggest to simplify and uniform: just "Si", "P" and "N".

This has been corrected.

2) I would remove the term 'self-sedimentation', which is actually only a process among many others; "sedimentation" is enough on my opinion.

This has been corrected.

3) Why upwelling should bring only nitrogen to the surface waters? I would report also Si and P.

This has been corrected.

Figure 3 (caption, line 2): "The agenta and grey circles" -> "The magenta and grey circles".

This has been corrected.