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Biogeosciences Discussions

Interactive comment on "Influence of bioturbation on the biogeochemistry of the sediment in the littoral zone of an acidic mine pit lake" *by* S. Lagauzère et al.

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REVIEWER #2

The paper should be published providing minor revision.

Comments: Material and methods

2.1 Sediment and organism sampling. The authors should give more details about the sediment sampling procedure (corer etc.)

–> The sediment coring was performed from a floating platform thanks to a simple mechanical gravity corer (UWITEC, Mondsee, Austria) extended by a telescopic bar.

Each sediment core was immediately shortened to have 20cm of sediment and the overlying water column was kept intact by sealing the top of the core with a plastic plug. After coring and transport the overlying water remained clear suggesting that few disruptions occurred in the sediment cores. This information has been added to the text.

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2.2 Micrososm set-up A period of 16 days of incubation was chosen. The authors should explain why the time duration was so short. The authors also did not mention whether the DET probes were deoxygenated before insertion in the sediment cores. The authors should also explain why distilled water instead of lake water was added to the cores to compensate for evaporation.

–> A period of 16 days was chosen as regard of the time of development of the chironomid larvae. We introduced a mixture of 3rd and 4th instar larvae and we had to replace the emergent individuals. To avoid too much handling in the aquaria, we preferred to have a short incubation duration. It was sufficient to highlight differences between undisturbed and bioturbated sediments. The DET probes were effectively deoxygenated thanks to N2-bubbling for 2H before their insertion in the sediment cores. This information has been added in the text. We added distilled water to compensate evaporation so as to avoid changes in the water concentrations of the different elements we measured. Evaporation means that water is lost but solutes stay in solution. Thus, addition of lake water would have increased the solute concentrations.

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2.7 Analysis of the sediment Authors should provide more information about the MPN method and also say how C, N, S were determined in the solid sediment samples.

–> The MPN method was previously described in the literature, that's why we only give a reference. However, the adjustments corresponding to our experiment has been

BGD

7, C4829–C4831, 2011

briefly added to the text. Solid phase concentrations of total C, N, and S were analyzed by high temperature combustion using an element analyzer (Vario EL, Elementar). Si was analyzed by wavelength dispersive X-ray fluorescence analysis (Siemens SRS 3000). This information has been added in the text.

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/7/C4829/2011/bgd-7-C4829-2011-supplement.pdf

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Interactive comment on Biogeosciences Discuss., 7, 7359, 2010.