Biogeosciences Discuss., 8, C657–C658, 2011
www.biogeosciences-discuss.net/8/C657/2011/

Biogeosciences Discussions

Interactive comment on "Biogeochemistry of sediments from restricted exchange environments of Kandalaksha Bay, White Sea, Russian Arctic" *by* S. Koukina et al.

Anonymous Referee #1

Received and published: 20 April 2011

The authors work in an interesting area where a number of biogeochemical processes can be studied. Crustal uplift in the area is around 4 mm per year, which has changed some silled marine basins into freshwater lakes. Furthermore, sediments are stratified with precipitated Fe-Mn oxyhydroxides in the top sections and an active sulfide boundary at different depths in the sediment. Sequestering of trace metals is most likely strongly regulated by sub-oxic reactions in the area.

However, the authors have not related their data to these processes. It is therefore difficult to evaluate the obtained results. Statistical correlations between sites are of little value considering the complicated biogeochemical gradients in the sediment at

each site. It would have been more informative to show vertical sediment profiles (0-10 cm, three or four samples) at each station, thus more clearly be able to identify elements associated to Fe-Mn oxyhydroxides, and also the degree of sulfide sequestering of trace metals.

The authors have not presented any hypothesis and it is unclear what the research questions are. The paper in its present form has local significance.

Interactive comment on Biogeosciences Discuss., 8, 1309, 2011.