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eEarth Discussions

Interactive comment on "Environmental response of living benthic foraminifera in Kiel Fjord, SW Baltic Sea" *by* A. Nikulina et al.

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General comments The presented paper is very interesting because of its coupling of historical and recent foraminiferal data with environmental parameters, especially anthropogenic influence. Furthermore, it adds to our still poor knowledge on the Baltic Sea foraminifers, especially their ecology. The used methods are well suited to answer the formulated questions. The high number of samples collected over several months and the other biological as well as geochemical analyses form an impressive database for this study. However, this database is not visible in large parts, what is really a pity and should be modified by adding census data etc. Also, the discussion should be extended. By my opinion, the presented manuscript will be a valuable contribution to foraminiferal and marine environmental research with much more than regional interest

when it will be completed and extended (see specific comments). I’ll be happy to see it published in a modified form in eED.

Specific comments A major drawback of the presented manuscript is the lack of tables with census or even dominance/abundance data for foraminifers. Also, Living/dead rations could be helpful explaining the distribution patterns and the comparison with the old data. The water depths sampled are not directly indicated and no description of the habitats/microhabitats is given. Because these factors are important for the distribution of taxa, they should be given if possible. I guess that the very shallow water ($<$1 m water depth) was not sampled because of lacking trochamminids and Miliammina fusca. SEM pictures of the important species would be helpful because of a still confused taxonomy of some taxa. The faunal list should be enlarged by at least one modern taxonomic reference per taxon to stabilize at least the regional taxonomy. I would be especially interested to see if the Ammonia tests in Kiel Fjörde are ornamented or smooth forms (or both) and how the authors distinguished between Cribroelphidium excavatum and Cribroelphidium gerthi. One major result of the study is the striking difference between the 1960s and recent abundances in Kiel Fjörde. I agree to the explanations given by the authors, however, methodological differences could be a reason – this should be discussed. Reasons could be a different sampling season, the different size fractions (100 μm vs. 63 μm, what excludes some juvenile tests) and recognition procedure of living forms for example. What’s about a comparison of the thanatocoenoses? Lutze’s counting sheets are not easily accessible, but it should be worth to contact him and ask for the season of sampling. Maybe the general list of sampling campaigns housed in the Kiel Institute could give some hints. Another interesting point for the discussion could be the different biomass, size and microhabitat use of the very large A. cassis dominating in the 1960s and the much smaller Ammonia dominating in the recent study. The comparison with the old Lutze data should be presented and discussed more in detail. Adding at least a correlation table or multivariate statistics correlating environmental parameters and foraminiferal data would support the conclusions. The pore water oxygen concentration

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was measured one time (p. 198), what is quite interesting. Please indicate the type of sediment and the time of measurement to make these data comparable with those from other studies.

Technical comments Numbers smaller than 21 should be written as words. The f. for forma should not be printed in italics. P192L21: Rhumbler instead of Rumbler P193L5: Schönfeld instead of Schoenfeld P194L8-10: The salinity is given correctly in units. Because the psu is not so familiar for geologists I would prefer to state psu, maybe with a reference. P194L10: temperature-depth distribution instead of temperature – depth distribution P195L9-10: Gerlach (1984) instead of Gerlach et al. (1984) P196L10-12: Were the CTD profiles measured for every sampling? P196L13: 3.3 Analysis of bioproduction parameters [or similar; geochemical analysis is not so well addressed] P196L23: HNO3-HF-HCLO4-HCL instead of HNO3-HF-HCLO4-HCL P196L25-26: MAG-1 were instead of MAG-1were P197L6: delete big P197L15: delete 8 P197L25: delete 8 P198L1: delete 8 P198L6-7: Reference for discharge value? P198L12: Unisens instead of Unises P199L4: Perttilä et al. (2003) or Pertillä et al. (2003)? [see references] P201L4-5: Reference for sedimentation rate? P202L7: gunteri instead of guntheri P203L3-5: The A/E index should be explained P203L28: Schönfeld and Numberger, 2007a or b? P204/5L29/1: If I remember right, Olsson (1976) explained the preference of the halocline level by A. cassis with food availability not reproduction mode. P207L25: Palaeogeogr. Palaeoclimatol. Instead of Paleogeogr. Paleoklimatol. P208L25: Universität instead of Universiat P209L25: Mecklenburger instead of Meklenburger P210L4: Matthäus instead of Mätthaus P210L11: Ostsee-Monitoring – die Schwermetall instead of Ostsee-Monitoring die Schwermetall P210L22: Mikropaläontologisch instead of Mikropaläontologische P211L11: Universität instead of Universiat

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Interactive comment on eEarth Discuss., 2, 191, 2007.