Biogeosciences
Discussions

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Interactive comment on "Live foraminiferal faunas (Rose Bengal stained) from the northern Arabian Sea: links with bottom-water oxygenation" *by* C. Caulle et al.

Anonymous Referee #1

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Dear Dr Kitazato

Many thanks for giving me the opportunity to review the work by Caulle and co-workers: "Live foraminiferal faunas (Rose Bengal stained) from the northern Arabian Sea: links with bottom-water oxygenation", submitted to Biogeosciences.

The work is based on a suite of multicores recovered from a transect in the northern Arabian Sea. The authors have studied the distribution of live (stained) foraminifera together with environmental variables from 10 stations, stations located along an oxygen concentration gradient. The sampling took place during the winter monsoon in 2009 and the foraminifera have been investigated in three different size fractions.

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Overall the paper is well written and well structured. The paper is well worth publishing in Biogeosciences, however, there are certain aspects which needs to be addressed.

Below I provide a summary, please look in the attached file for more comments.

I lack a clearly defined aim.

Why have the authors performed this study and what is the problem that they want to solve?

Are they foremost interested in a paleoproxy calibration approach or in the biology of benthic foraminifera in an low oxygen environment. Both approaches can be easily justified but it requires a more detailed aim from the beginning. It will increase the interest for the paper and also something to go back to in the conclusions.

The authors mention in the beginning that the study is based on rose Bengal samples. This should be made clearer throughout the text. I also recommend a more detailed discussion about why the authors choose to work on RB instead of CTG in this particular project. I'm also curios why the authors choose to work on several different size classes, however, apparently didn't work extensively on the smallest fraction (>63 um), which is probably the most important one when it comes to a low oxygen environment.

The manuscript will benefit if it was stated from the beginning what was already published and what are new data. I find the discussion about the saturation stages and dissolution most interesting and I think it would benefit the paper strongly if this part could be expanded and that the unpublished Reichert data (also a co-author on this paper) could be included in the manuscript. The authors discuss the planktonic forams but they have, of course, been transported through the water column, what about the benthic ones? Do the authors see a difference between the RB stained and the recently dead ones (i.e not stained in the upper most one cm)?

Conclusions need to be more firm and exact. What new knowledge and conclusions can we draw from this study? I recommend the authors to help the reader to better

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understand what do we know now that we didn't know before and how can we but this knowledge in a larger perspective? This should be coupled to the aim. (even if the results are that we couldn't link the forams to the environmental parameters, a negative result is also a result).

Structure: I wouldn't use the word feel in a scientific text. I would assume that the authors base their reasoning around something a bit more logical and rational than feelings. The authors use a lot of abbreviations, which makes the text unnecessarily difficult to read. Example: instead of TTS use abundance or concentration. Already published work should be discussed in present tense, the authors new data should be discussed in past tense. There is a mix between discussion and results in the result section from the PCA, any interpretation needs to be moved to the discussion section.

Taxonomy : I suggest the authors to look at instructions for authors for a more micropal journal to learn how to write taxonomic names (the more senior authors could perhaps also kindly inform the younger ones). Eubuliminella exilis is now new name for Bulimina exilis according WoRMS data base. I think the authors would find the paper by Filipsson et al (2011) in J Q Sciences helpful when it comes to the B. exilis discussion.

Statistics: The R^2 values need to be reported with significance values. Any discussion about trends needs to be statistically tested incl. significance test.

Again, I stress that it is a good study and it is overall nicely written and based on a substantial amount of material. A bit more work and it will be a very good paper as well.

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/10/C6867/2013/bgd-10-C6867-2013-supplement.pdf

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