

## ***Interactive comment on “Redox sensitive elements in foraminifera from the Peruvian oxygen minimum zone” by N. Glock et al.***

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Received and published: 11 August 2011

Review for bgd-8-7953-2011 “Redox sensitive elements in foraminifera from the Peruvian OMZ” by Glock et al.

The manuscript reports elemental concentrations (ratios) of two infaunal species *Uvigerina peregrina* and *Bolivina spissa* in core-top samples collected from Peruvian OMZ region. The authors used electron microprobe (EMP), secondary ion mass spectrometry (SIMS) and ICP-MS to investigate distribution of various elements on the surface and cross-sections of the test walls, with comparisons made to the bulk sample analyses. Fe and Mn are the focus of this study as they are redox sensitive elements. Their results visually demonstrate effects of cleaning procedure on the elemental ratios. It is interesting to see that Fe enrichment is associated with organic matter. The

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comparison between microanalyses and bulk sample measurements is useful and important to show. The approach of putting these data in the context of porewater chemistry is also valid. Overall, the data warrant publication, pending on substantial and careful rewriting of the manuscript. Good work, but need better packing!

Some general comments: 1. The title sounds a little too broad (almost like a review paper) to me compared to the content of this paper. I think the authors may need to rethink about the central question(s) that this dataset can answer, and leave some hints in the title and introduction. 2. From a general audience's point of view, it might be good to provide more information about the two species. Where can they be found outside of Peru OMZ? What are the oxygenation and nutrient levels (limits) that they are adapted to? Are they sensitive to temperature and salinity? Can factors other than oxygenation killed all of them in some of your sites? 3. The entire discussion probably needs to be organized differently. There are several angles to interrogate the dataset: any new findings about analytical techniques; the ecological and physiological (calcification mode) difference between the two species; any common geochemical features in OMZ recorded in forams; what exactly Fe/Ca Mn/Ca are recording; recent local environmental changes. I feel the manuscript touched upon every single question, but haven't thoroughly interpreted the data and organized them in a logical order. 4. The last paragraph of the discussion about Fe in porewater (Fig 13) could be tied closer to the foram data. Right now it appears to be decoupled from the new data.

See attached pdf for other minor editorial changes...

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/8/C2435/2011/bgd-8-C2435-2011-supplement.pdf>

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Interactive comment on Biogeosciences Discuss., 8, 7953, 2011.