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Biogeosciences Discussions

Interactive comment on "^{210}Pb-^{226}Ra chronology reveals rapid growth rate of *Madrepora oculata* and *Lophelia pertusa* on world's largest cold-water coral reef" *by* P. Sabatier et al.

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210Pb-226Ra chronology reveals rapid growth rate of Madrepora oculata and Lophelia pertusa on world's largest cold-water coral reef

Response to the Anonymous Referee #2

We thank the Anonymous Referee#2 for his/her review and very interesting comments on our manuscript. We have taken into account those in order to improve our paper. Please find our answers to the review below.

Major comments

In general, the language should be check by the native speaking co-author as still a lot of grammatical mistakes are present. The language was check by Jason Hall-Spencer, native English speaker and corrected in the new version of the manuscript.

I would like to see a more detailed discussion on the cleaning procedure, especially on the degree of contamination through boring organisms on dead coral parts making it difficult to use those specimens for detailed geochemical analyzes (e.g. Beuck et al., 2007, Facies 53:157–176, DOI 10.1007/s10347-006-0094-9) The cleaning procedure was described in detail in Copard et al., (2010) and resume in this manuscript, but to answer to the R2 we added a sentence about the alteration through boring organisms (taking to account through the sampling procedure) and we quote the article proposed after a careful reading of this interesting manuscript. Cleaning procedure: Briefly, coral polyps were sliced in half and rinsed in MilliQ water to remove sediments from the external and internal surface. Then, this procedure consists of carefully polishing the inner and outermost surfaces of the coral skeletons using a diamond-bladed saw to remove surface contaminants such as ferromanganese coatings and remains of organic matter. At this step, we avoid specimens that reveal skeleton alteration through boring organisms (Beuck et al., 2007).

Different species are also discussed to tolerate different levels of environmental parameters. E. g. Wienberg et al. (Deep-Sea Research I 56 (2009) 1873–1893) present data from the Gulf of Cadiz, where M. oculata seems to have a higher tolerance to environmental changes compared to L. pertusa. This should be also considered in the discussion of comparison between L. pertusa and M. oculata data. In this paper we do not really discuss about the environmental parameters tolerance of this two species. We restricted this paper to estimate through short-lived radionuclides the in situ growth rate of these two specimens in one of the most active deep-sea reefs known today. Thus we estimate the modern growth rate of these coral in an environment highly favorable to their growth. Likely no other growth rate estimation was done for in situ Madrepora species, we can not discuss about the influence of environmental param-

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8, C5937–C5939, 2012

eters on this species. For Lophelia specimen we try to compare with other previously published data, but we have to interpret our data on this species in a high conservative way in relation to our uncertainties about the growth rate, as pointed out by the Reviewer 1.

All suggested English corrections were done.

Minor comments

All English corrections proposed by the referee were made

12251/27: Frank et al. 2011 not in reference list This reference was updated

12252/27: link to figure 1 is wrong, there is no map, re-number figures in the following text after adding the map including the position of the Røst Reef as figure 1 Yes we deleted this reference, as this map was already published in Fossa et al., 2005. But to illustrate the sampling procedure we add a new figure with two ROV pictures.

12262/13 : subscribe "ex" in 210Pbex We change 210Pbex by 210Pbex through the entire manuscript

12264/21: 5 polyps yr-1 We prefer used “5 polyps.yr-1”

Is it "210Pb-226Ra" or "226Ra-210Pb" method / chronology / excess method? Different in title-abstract-conclusion It is 210Pb-226Ra method, we correct this through the entire manuscript.

We have deleted all not cited references

Interactive comment on Biogeosciences Discuss., 8, 12247, 2011.