Biogeosciences Discuss., 12, C552–C554, 2015
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# *Interactive comment on* "Ocean acidification does not affect magnesium composition or dolomite formation in living crustose coralline algae, *Porolithon onkodes* in an experimental system" *by* M. C. Nash et al.

**Anonymous Referee #2**

Received and published: 9 March 2015

General comments: This interesting manuscript investigates mineralogic and skeletal changes in crustose coralline algae (CCA) in response to ocean acidification (OA). They find that tropical CCA do not change the Mg content of their high Mg skeleton under acidified conditions. This research has significant implications in understanding the future longevity of tropical CCA and their roles in reef systems. I particularly like the preindustrial OA treatment as it gives a nice baseline.

Specific comments:

Some of the figure legends have inference in them. I would leave that in the results /



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discussion sections.

P1384 L 24: could this be post depositional change?

P1386 L10: also contrast to Kamenos et al 2013 GCB which show a fall in Mg concentrations of L glaciale at high pCO2.

P1386 L16: All the references are for free living or articulated species rather than crusts. I would re reword to “coralline algae structure” and make it complete also add Kamenos et al 2013 Glob Ch Biol and Burdett et al 2012 Mar Biol Res 8:756-763 to the list both of which consider structure (skeletal and epithelial correspondingly).

P1389 L20: Not sure you can make that conclusion about the organic film as you have not measured photosynthesis etc. Also, from the micrograph it could be an artefact. I would remove this sentence to be on the safe side.

Detailed comments:

Pg 1374 L12: “was affected”

Pg 1374 L14: “affected” rather than “effected” and “affect” rather than “effect”

Pg 1375 L20: Rhodoliths

Pg 1377 L14 and through out. Refer to the pCO2 as uatm. Strictly, ppm is atmospheric CO2.

Pg 1378 Section 2.3. First sentence is quite long, could be made into two smaller ones.

Pg 1380 L3. Space between P and onkodes. Check this through out, there are a few places where space is missing.

Pg 1380 L67 Mastigocoleus should have a sp. after it and be in italics

Pg 1382 L1 “have been” should be changed to “were” to keep the tenses the same

Pg 1387 L13: Therefore - add an e at the end



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Pg 1388 L25: Therefore - add an e at the end

Table 1: give the same number of decimal places in all. Also if $p < 0.001$ just quote $p < 0.001$.

Figure 2: Very clear figure. Just one comment; change the star symbol to a triangle or square as stars have a particular statistical meaning (indicate statistical significance at $p < 0.05$).

Figure 4: There are two scale bars on the micrographs, I would remove the instrumentally added one and just use the bar you have added, this will make the micrographs less busy. I would also make the text larger so it is easier to see. This applies to all the figures with micrographs in them

Figure 5: As with figure 4. Also for c) The dashed arrow seems to be pointing to "SEM charging" captured in the micrograph. Also, is the organic covering due to sample preparation if it is on the exposed surface?

Figure 6: A little hard to work out what is going on here due the saw damage on the sample. How do you know what is pre experimental growth and also what is dolomite infill? Do you have micrographs similar to those in Fig 7?

Figure 8: Define A and B in (a) and (b). (d) is indicated as D in the legend. Scale bar sentence should be (b), (c), (d) so not to confuse with D for dolomite.

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Interactive comment on Biogeosciences Discuss., 12, 1373, 2015.