

***Interactive comment on “Coccolithophore  
response to climate and surface hydrography in  
Santa Barbara Basin, California, AD 1917–2004”  
by M. Grelaud et al.***

**P. Halloran**

paul.halloran@earth.ox.ac.uk

Received and published: 4 November 2008

I found this a very stimulating and interesting manuscript, and beyond being encouraged by the apparent agreement with the sedimentary results published by Iglesias-Rodriguez and Halloran et al. (2008), feel that this is an ideal way to investigate the consequences of anthropogenic (and otherwise) change on marine ecosystems and carbon cycling.

I would like to make a couple of minor points regarding the description of the carbonate system, and suggest the possible addition of confidence intervals upon the linear regressions presented in figure 5. Although I don't imagine that this statistical analysis

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



would change the story, I feel it would be of interest for the reader.

Regarding the discussion of the calcification response to, and influence on, the carbonate system I would like to highlight the sentence starting on line 25 of page 4143, which in my reading implies that there is DIC production as a result of pH reduction in the culture medium. I understand and agree with the point that the authors are making, that manipulating cultures by adding CO<sub>2</sub> increases [DIC], but to avoid confusion would suggest a slight change in the wording to make clear that, in contrast to manipulation by CO<sub>2</sub> addition, by adding acid there is no change in total [DIC], only a change in the speciation of the individual components making up that total DIC concentration.

Additionally, regarding lines 16 to 19 on page 4144, I think it would be valuable to point out that rather than removing CO<sub>2</sub> from the surface ocean, additional calcification (without a concomitant increase in organic carbon production) would actually increase the surface water CO<sub>2</sub> concentration, if caused by ocean acidification, acting as a positive feedback on CO<sub>2</sub>. My reading of the manuscript gave the opposite impression.

---

Interactive comment on Biogeosciences Discuss., 5, 4129, 2008.

**BGD**

5, S2181–S2182, 2008

---

Interactive  
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

S2182

