



## ***Interactive comment on “Significant long-term increase of fossil fuel CO<sub>2</sub> uptake from reduced marine calcification” by A. Ridgwell et al.***

**A. Ridgwell et al.**

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A validation plot of surface ocean saturation is not a bad idea - now included (new Figure 2).

The Referee also kindly provides a number of specific comments and suggestions, which we have addressed as follows;

> We have added a comparison plot of simulated vs. observed calcite saturation state as requested (although we have plotted saturation state, which is directly relevant to the calcification parameterization rather than deviation of carbonate ion concentration from saturation).

> Page 1768, line 1-5: The relevance of this particular comment to the cited section is not entirely clear. To some extent we agree with the caveat regarding our organic car-

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bon productivity model although for assessing first-order impacts of ocean acidification on carbonate production this is not necessarily an issue. In fact, we would argue that because of the current uncertainties, a state-of-the-art ecosystem model would be no more likely to produce a 'realistic' future response of global carbonate production.

- > Page 1768, line 4: We have removed the confusing line in question.
- > Page 1768, line 26: Added definition of DELTACO<sub>2</sub>.
- > Page 1770, line 5: Typo corrected.
- > Page 1770, line 6-13: On reflection we agree. Relevance (compared to the fossil fuel CO<sub>2</sub> increase) of the likely CO<sub>2</sub> reduction due to CO<sub>2</sub>-calcification feedback to long-term ice-sheet stability removed as requested.
- > Page 1770: We have mentioned aragonite re-dissolution as suggested (Section 5).

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Interactive comment on Biogeosciences Discuss., 3, 1763, 2006.

**BGD**

3, S1078–S1079, 2007

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