

Interactive comment on “Significant long-term increase of fossil fuel CO₂ uptake from reduced marine calcification” by A. Ridgwell et al.

A. Ridgwell et al.

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Jean-Pierre suggests expanding the description of the processes at work in the Introduction. We have thus revised and expanded the Introduction.

With respect to Table 1:

> We have added an additional column for ‘aragonite’ (as opposed to ‘calcite’) (and instead of a footnote).

> With regards to the results of coral manipulations - we did not intend the Table to be comprehensive for corals. After all, corals are not necessarily relevant to the analysis of pelagic calcification, which is why we deliberately did not draw explicit comparison (the color shading) between coral response and ensemble members in Figure 4. We have made this clearer and have re-titled the Table. We have also cited the additional

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studies mentioned.

> Jean-Pierre is right that only weights and not calcification rates were reported in Bijma et al. [1999], from which we have drawn information on potential sensitivity of carbonate production to acidification in this present study. The problem with all other forams is that they form their chamber intermittently. i.e. over the course of a few hours and then nothing observable happens until their biomass increase requires them to form a new chamber. However, once *Orbulina* forms its final chamber it seems to continuously calcifies up to gametogenesis (dark calcification is less than calcification in the light).

> As for Jean-Pierre's point regarding the *G. bulloides* of Bijma et al. [1999] - we don't report or consider this data anyway, so the comment is not relevant.

> We are grateful for the pointers to additional calcification data. We have expanded the information contained in Table 1 accordingly.

> We feel that Table 1 is more consistent with the figure if we retain sorting by sensitivity of calcification, but make this explicit in the text.

We have clarified to what extent we have taken into account the importance of changes in climate on CO₂-calcification feedback.

We have made available the input parameter sets for all 54 members of the ensemble as suggested.

Finally, Jean-Pierre lists a couple of typos, which we have now corrected.

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3, S1070–S1071, 2007

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