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Biogeosciences Discussions

Interactive comment on "Significant long-term increase of fossil fuel CO_2 uptake from reduced marine calcification" *by* A. Ridgwell et al.

A. Ridgwell et al.

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hris is correct to raise the point regarding the potential for pelagic calcifiers to continue calcify at OHMEGA $<$ 1.0 and that this might represent a bias in our model. However, we do not believe that it is possible to formulate an entirely correct description given current knowledge. Instead, because there are now three different ocean GCM-based carbon cycle studies available (this current work, Heinze [2004], and most recently, Gehlen et al. [2007]) we feel that Chris' concerns are best addressed via an inter-comparison between the different studies and model results we have carried out rather than substituting the equation in our study. To this end we have also added additional discussion of the limitations of our chosen approach to encapsulating a currently poorly understood and complex biogeochemical and ecological response to environmental changes. We have found that uncertainties in the species assumed to dominate car-

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bonate production globally (as well as which experimental manipulation best reflects reality) are much greater than the uncertainty in parameterization.

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