

Interactive comment on “Inter- and intra-specific responses of coccolithophores to CO₂-induced ocean acidification” by D. S. Wang et al.

Anonymous Referee #3

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In this manuscript the authors report on studies on naked and calcified strains of the coccolithophorids *Emiliana* and *Gephyrocapsa* under a range of CO₂ levels. Potentially these are interesting questions, but the range of pH culture variation during growth suggests that, at the lower concentrations at least, there were massive perturbations to pH and hence to inorganic carbon chemistry. The experimental design was not carried out according to the EPOCA best practice recommendations for ocean acidification studies. This makes any meaningful discussion in terms of ocean acidification effects problematic. As a result the manuscript would need considerable rewriting.

The very large shifts in pH during the course of the experiment mean that the DIC system will have experienced major changes as well. It would be useful to present calculations for the DIC system components for the end of exponential phase and the

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end of the experiment, in addition to those at the start given in Table S1.

The more-or-less steady decrease in chl and Fv/Fm with time suggest cultures had become N-starved over time. In all cases there is however a significant rise in Fv/Fm on day 7, but no explanation is put forward for why this might have occurred.

It would be useful to know cell density for inoculation (section 2.2) and what was the bubbling rate used for aeration?

English expression requires considerable attention throughout the manuscript.

There are other minor issues of presentation that I have not listed here as the matters raised above will require a major rewrite of the manuscript.

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