Interactive comment on “Mesocosm CO₂ perturbation studies: from organism to community level” by U. Riebesell et al.

Anonymous Referee #1

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GENERAL COMMENTS

The authors provide a preface to the BG special issue on the PEECE-III experiment.

SPECIFIC COMMENTS

P642 L2-4 : this statement should be corroborated by references

P642 L4-6 : this statement should be corroborated by references

P642 L10-22 : A note of caution could be added here, since some of the cited experiments have used chemical conditions that are not realistic. For instance the study of Kurihara & Shirayama (2004) used pCO2 values of 10,000 ppm that induced pH values down to 6.8.
The work of Kurihara et al. (2007) reports on acidification effects on oyster larvae.

Kikkawa et al. (2004) reports on acidification effects on red sea bream larvae.

A conceptual diagram summarizing the feedback loops at pelagic ecosystem level due to acidification would be a nice addition.

References for the iron and phosphate enrichment experiments could be added.

According to Vogt et al. (2007) previous results on effects of acidification on DMS (Avgoustidi et al. 2007) were different from those obtained during PEECE-III.

Here or elsewhere, it would be interesting to speculate on how far or close we are to develop ‘simple’ parameterizations that can be included in GC models (e.g. Gehlen et al. 2007), or if this is realistic or not considering the complexity of the responses to acidification.

I’m aware of at least 2 ongoing initiatives that are looking into this, that could be cited.


Vogt et al.: Dynamics of dimethylsulphoniopropionate and dimethylsulphide under different CO2 concentrations during a mesocosm experiment, Biogeosciences Discuss., 4, 3673 - 3699, 2007

Interactive comment on Biogeosciences Discuss., 5, 641, 2008.