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Interactive comment on "Vanishing coccolith vital effects with alleviated CO_2 limitation" *by* M. Hermoso et al.

M. Hermoso et al.

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Dear Professor Bijma,

We thank the three Referees for their insightful comments and your considered guidance for the revisions. As you will see in the cumulative point-by-point response (uploaded as a Supplement to this comment), we have dealt with all the points arisen from peer-review and welcomed most of the comments and suggestions that have substantially improved our manuscript. Importantly, we feel that the problem linked with "the CO2 vs HCO3- controversy" quoted by Referee#2 has been resolved by altering the text to reflect carbon (DIC) availability generally.

Following your own recommendation and that of Referee#2 during the Interactive Dis-

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cussion, we have removed the sections and figures presenting and discussing the DCUt index. Section 3.3. has been removed; Section 4.2 has been amended and we now discuss the magnitude of the vital effect in the context of ambient total DIC concentrations. We do not explicitly, nor implicitly state that CO2 is the prime source of carbon used for calcification in coccolithophores in our revisions, and instead adopt a pure empirical calibration by considering DIC levels. The manuscript now focuses on the palaeoceanographic implications of this work by shortening the biogeochemical discussion (as suggested by Referee#3). Importantly, we do not feel that these changes have removed any substance from our work, at least from a geological perspective, and the data can be used to better interpret fossil coccolith isotopic signals (and bulk carbonate!) from the sedimentological record, as it was our primary aim.

Last, we apologise for not providing the raw data with our original submission, a table with all the collected dataset (media and calcite) used for this study has been prepared and will be submitted with the revised manuscript.

Many thanks,

Michael Hermoso and coauthors

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/12/C8086/2015/bgd-12-C8086-2015-supplement.pdf

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Interactive comment on Biogeosciences Discuss., 12, 15835, 2015.