

Interactive comment on “High-resolution ocean pH dynamics in four subtropical Atlantic benthic habitats” by C. A. Hernández et al.

C. A. Hernández et al.

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Thank you for your comments. We have taken into consideration your constructive criticism, as well as those of referee #1, and made a revised version of the manuscript, which will be uploaded as a supplement.

Answers to referee #2 comments:

1.- The first two sentences of the abstract have been changed to: “Oscillations of ocean pH have not been well studied in shallow coastal waters, and such variability remain not available for certain world regions. However, these dataset are of great importance to ocean acidification studies, yet has relatively neglected. In order to fill this knowledge. . .” 2.- We have removed the statement, as it was inaccurate. 3.- The abstract

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has been modified, trying to better summarize the major findings of our study, presenting both diurnal and seasonal variability of pH. 4.- The sentence have been rewritten following your recommendation to accurately describe the effects of CO₂ uptake on the carbonate system. 5.- We have clarified that some studies do not take into consideration spatial and temporal variability when choosing pCO₂ or pH levels. 6.- We modified the paragraph as recommended. 7.- We had previously deployed the sensors for longer time periods to test them. We found that under a 15 days deployment time the mentioned problems (biofouling covering the electrode, which caused bad readings, and instrument drift) were not detected. 8.- We tried to protect the electrodes while allowing an appropriate water exchange. Of course, a more open case would be better, but we were afraid that the rough sea conditions that are frequent in the area could cause damage to the systems. However, we have designed protective cases that ensure completely water flow. Thank you for the advice. 9.- We have reorganized the results section following your guidelines. 10.- Unfortunately, we did not obtain tidal height data that could be applied to the studied sites. We believe that advection is not an important factor in the studied locations (there are not local upwelling processes or nearby fresh water sources, and the areas are not enclosed), but of course the data would be useful. 11.- We have added a new figure presenting the daily distribution of temperature and modified figure 3 to add temperature as a new dataset. We had used a temperature sensor installed in the datalogger box to obtain temperature data as well. 12.- We added a new table with mean carbonate system parameters in the morning and in the afternoon at each site. We took some discrete total alkalinity measurements at each location. 13.- Specific dates have been added to Table 3. 14.- We have added other coastal system to the discussion, as suggested, and moved the open water case to the introduction section.

Thank you again for your comments; we look forward to hearing from you. Sincerely,
José Carlos Hernández August 15th 2016, La Laguna, Tenerife, Canary Islands.

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Please also note the supplement to this comment:
<http://www.biogeosciences-discuss.net/12/C10613/2016/bgd-12-C10613-2016-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 12, 19481, 2015.

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