

Interactive comment on “Observed increase in springtime surface partial pressure of CO₂ in the east equatorial Indian Ocean during 1962–2012” by L. Xue et al.

Anonymous Referee #1

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This paper combines pCO₂ measurements made on a cruise in the eastern equatorial Indian Ocean in May 2012 and compares them to pCO₂ observations made in the same general area over the last 50 years. While I did not find any fatal flaws in the manuscript, I was rather unimpressed with the level of effort and scientific work that went into this paper. It basically describes changes in surface pCO₂ that are fully expected and predictable. For the most part, the attempt to attribute the changes to different mechanisms was qualitative and the authors readily acknowledge the limitations based on the paucity of data.

I saw no discussion of the calibration or any attempt to verify the accuracy of the 2012 data. Were there any discrete carbon samples collected to validate the accuracy?

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Did the methods of analysis follow the best practices handbook (Dickson et al., 2007; http://cdiac.ornl.gov/oceans/Handbook_2007.html)?

The discussion of the drop in pH was very elementary and added very little to the paper. I would have liked to have seen a much more in depth analysis of ocean acidification in this area and how it is affecting the local marine ecosystem.

I also note that there were a number of grammatical errors in the manuscript that should be corrected. Perhaps the authors can find a native English speaker to help proofread the text.

In summary, I have no major concerns if the manuscript is published after the grammar is corrected, but I do not think that this work significantly advances the science. I would prefer if the authors went back and thought a little harder about what interesting science could come from this work than to just say that rising atmospheric CO₂ and increasing temperature are causing the surface water CO₂ to go up and the pH to go down. I recommend major revisions.

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