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Interactive comment on “The large variation in organic carbon consumption in spring in the East China Sea” by C.-C. Chen et al.

Anonymous Referee #2

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General comments: This paper presented interannual variations in the community respiration in spring 2009 and 2010, as well as fCO₂. However, authors failed to present an interesting store. Many concerns have been raised. First of all, the effect of temperature on community respiration that they presented is a known fact. It is interesting to determine if temperature affect ratio of primary production to respiration. However, they failed to do so since primary production data was not available. secondly, the Changjiang river input would affect fCO₂, but they never mentioned this possibility. They only attributed interannual variations in fCO₂ to temperature. Some statements seemed incorrect. For example, they stated that Changjiang river discharge was similar in spring in 2009 and 2010. However, this statement is not supported by salinity data. In addition, I have a lot of comments (see below). Detailed comments: 1. Line 8 in page 16534, why did they say that the fluvial discharges are similar. Based on salinity

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data, the river discharge differed significantly between two spring seasons. 2. Line 14 in page 16534, what are the planktonic activities that they mentioned here? 3. Lines 25-16 in page 16534, that sentence 'organic carbon consumptionphysical factor (e.g. temperature)' is meaningless. In any time, organic carbon consumption is regulated by planktonic activities and temperature. 4. Line 1 in P 16535, change 'intraseasonal' to 'interannual'. In this study, they mainly compared CR in spring between 2009 and 2010. 5. Lines 13-14 in P 16536, delete that sentence. Don't present results or conclusions in the introduction. 6. Line 17 in P 16536, change 'intraseasonal' to 'interannual'. 7. Line 17 in P 16536, what variations? 8. Line 18 in P 16536, what is the role of planktonic acitivity? What is the carbon balance? They did not measure bacterial production that is equally important to respiration. How to evaluate the carbon balance without BP? 9. CR is more related to DOC than POC. However, DOC data were not presented. 10. How to obtain daily primary production? 11. Primary production was determined with CR at the same time? 12. What statistical analysis was performed? 13. Line 1 in P 16540, what variation? 14. Where was the data of Changjiang Diluted Water discharge from? 15. CDW data presented here is contradictory with salinity data in this study. Why? 16. Lines 1-2 P 16541, need to show data of SSS vs phosphate and silicate. 17. Lines 6-7 P 1641, replace '0' with 'undetectable'. 'undetectable' does not mean '0'. 18. What is the detect limit of nutrients (NO₃, PO₄, SiO₄)? 19. Lines 13-14,in P16542, Where is the data of chl a vs nitrate? 20. Lines 15-16 in P16542, need to show data of chl a vs phosphate or silicate. 21. Lines 18-20 in 16542, Fig 4 did not support this statement. 22. Lines 21-22 in P 16543, I don't know that SSS show the same pattern between 2009 and 2010. SSS in 2010 was obviously lower than 2009. 23. Line 1-2 in P16543, I don't understand how the previous statements explained the relationship between SSS and nitrate and Chl a. A linear regression of SSS vs nitrate is because nitrate was mainly from the river discharge, but not for Chl a. 24. Line 17-19 in P 16543. There is a temperature and salinity gradient from inshore to offshore due to mixing of the river discharge with seawater. Maximum Chl a occurs generally in region with middle salinity (also middle temperature) due to long residence time. I

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don't agree that temperature control phytoplankton growth. Their statement is biased based on relationship of Chl a vs temperature alone. 25. Lines 21-22 in P 16546, It is not clear about that sentence. Phytoplankton contributed to CR? I think that bacteria and zooplankton mainly contributed to CR, not phytoplankton. 26. How to define inner, middle and outer shelf? 27. The Changjiang River discharge would affect fCO₂. Based on salinity data, the river discharge was different. It is necessary to evaluate how the river discharge affect fCO₂ in spring.

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