

Interactive comment on “Seasonality of CO₂ in coastal oceans altered by increasing anthropogenic nutrient delivery from large rivers: evidence from the Changjiang-East China Sea system” by W.-C. Chou et al.

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Response to Referee #2's comments:

Thank you very much for your time and effort in reviewing our manuscript and providing valuable technical comments, which have greatly helped us in revising the manuscript. We have carefully read your comments and have revised the manuscript in accordance with your suggestions. Our responses to each comment are provided below.

Page 18994, Line 12, 18, 19: authors need to be more specific when using “CO₂” term.

C9403

Do they mean dissolved inorganic carbon as a whole or “aqueous CO₂?”

We have replaced “CO₂” in page 18994 (Line 12, 18, 19) by dissolved inorganic carbon (DIC).

P18998 Line 4: seawater sample of 0.75 ml seems to be too small. Is this a standard method?

For DIC measurement, generally 0.5 to 1 ml water sample is needed using an AS-C3 DIC analyzer (Apollo SciTech Inc., Georgia, USA; Cai and Wang, 1998). A technical note is available from the author upon request (W.-J. Cai, wcai@udel.edu). Cai, W.-J., and Wang, Y.: The chemistry, fluxes and sources of carbon dioxide in the estuarine waters of the Satilla and Altamaha Rivers, Georgia. *Limnol. Oceanogr.*, 43, 657–668, 1998.

Some adjectives such as “tremendous”, “enormous” need to be changed to mean more quantitative.

We have revised the related descriptions in a quantitative way: (1) “enormous nutrient discharge from the Changjiang” in page 19000 (Line 4-5) has been replaced by “enormous nutrient discharge from the Changjiang (0.75–8.65, 0.001–0.041 and 0.34–9.19 kmol s⁻¹ in summer for nitrate, phosphate and silicate, respectively; Zhang et al., 2007)”

Zhang, J., Liu, S.M., Ren, J.L. Wu, Y., and Zhang G.L.: Nutrient gradients from the eutrophic Changjiang (Yangtze River) Estuary to the oligotrophic Kuroshio waters and re-evaluation of budgets for the East China Sea Shelf. *Progress in Oceanography*, 74, 449–478, 2007.

(2) “Tremendous amounts of O₂ and CO₂ were therefore consumed and released. . .” in page 19001 (Line 22-23) has been replaced by “Tremendous amounts of O₂ and CO₂ were therefore consumed and released (At station 19, for example, AOU and DIC increased from -60 and 1817 μmol kg⁻¹ at the surface, respectively, to 70 and 2027

C9404

umol kg⁻¹ at 10 m depth.)”

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C9405