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Interactive comment on “Review article “Air-sea exchanges of CO₂ in world’s coastal seas”” by C.-T. A. Chen et al.

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This is a nice synthesis. A persistent problem with evaluating biogas fluxes is the lack of temporal rather than spatial coverage. Such information is often more useful for model validation than spatial coverage. Previous studies have demonstrated short term changes in pCO₂ at scales of days or less (see references below). Yet, typically our understanding of this variability is limited to a few research cruises. I feel it is worth discussing this source of uncertainty.

References: Bozec, Y., Merlivat, L., Baudoux, A.-C., Beaumont, L., Blain, S., Bucciarelli, E., Danguy, T., Grossteffan, E., Guillot, A., Guillou, J., Répécaud, M., Tréguer, P., 2011. Diurnal to inter-annual dynamics of pCO₂ recorded by a CARIOCA sensor in a temperate coastal ecosystem (2003–2009). *Marine Chemistry* 126, 13-26.

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Dai, M., Lu, Z., Zhai, W., Chen, B., Cao, Z., Zhou, K., Cai, W.-J., Chen, C.-T.A., 2009. Diurnal variations of surface seawater pCO₂ in contrasting coastal environments. *Limnology and Oceanography* 54, 735-745.

Kitidis, V., Hardman-Mountford, N.J., Litt, E., Brown, I., Cummings, D., Hartman, S., Hydes, D., Fishwick, J.R., Harris, C., Martinez-Vicente, V., Woodward, E.M.S., Smyth, T.J., 2012. Seasonal dynamics of the carbonate system in the Western English Channel. *Continental Shelf Research* 42, 30-40.

Interactive comment on Biogeosciences Discuss., 10, 5041, 2013.

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