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Discussions

Interactive comment on "Ecosystem respiration in coastal tidal flats can be modelled from air temperature, plant biomass and inundation regime" *by* Xueyang Yu et al.

Anonymous Referee #2

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The manuscript aims at modelling the seasonal variations of ecosystem respiration in a coastal wetland of China (Liaohe Delta) dominated by Suaeda salsa, in relation with environmental factors. Besides the fact that the present work seems to be redundant with, at least, a previous study conducted in the same area (Ye et al., 2016), I think that the methods used (which, in addition, are not appropriately described) were not appropriate to answer the tackled question. Thus, I do not think that the present manuscript is suitable for publication in Biogeosciences.

General comments - Since the study area is dominated by a herbaceaous species (S. salsa), a global understanding of gaseaous CO2 exchanges should also consider pho-

tosynthesis. That would imply measurements of CO2 exhanges under light conditions which would be an evaluation of the net commiunity production, i.e. the net balance between respiration fluxes (due to plants, bacteria, etc...) and phtosynthetic fluxes (due to plants and other potential primary producers). Here, the measurements were conduted only in darkness (by the way, the authors did not mentione it, but it seems that the 8100-103 survey chamber is a dark chamber...), which actually estimated community respiration, but which is not sufficient to understand the global CO2 exchanges. Furthermore, measurements were conducted during 90s periods which seemes very short. We also have no indication on the time of day when measurements were conducted; this is important since respiration in tidal wetlands is known to vary at the day scale. "Measurements were replicated twice, and values were averaged" (L. 177) : is it relevant to calculate a mean based on 2 values...? - I have a problem with how measurements during the inundation period are discussed...: "the water level of 1 cm could completely block the soil respiration"(L. 388-389). I think this is totally wrong: respiration is not blocked but exhanges with the atmosphere! The authors even wrote it L. 331-333 !!! - I generally do not understand how the model was built, in particluar equations 2-6...

Miscellaneous - The ms should be checked for typos - Use past tense throughout the text (see L. 160-165) - L. 204-205: measured dark CO2 fluxes - Figure 5: equation (and r2) for the regression? - Figure 6: I think that some linear regressions are actually not significant (June 2013, September 2013, October 2012, November 2013). - L. 381: does equation 2 comes from Fig. 8c? - L. 453: "from -61 to 2995 mg CO2 m-2 h-1.

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