Over the past 10 to 15 years, there have been great advances in data collection and synthesis of air-water CO2 fluxes at the land-ocean interfaces. While global synthesis based on extrapolations of known systems have been presented using various approaches, we often do not know such information at regional scales. For example, while I have compared global air-water CO2 fluxes in estuaries and shelves with that of the open ocean to emphasize the importance of estuaries and shelves despite their small areas (Bauer et al., 2013; Cai, 2011), I cannot give such a comparison for the North America east coasts as, among other reasons, there is no pCO2 data from a few largest estuaries in that regions (e.g. the Chesapeake Bay). Furthermore, while spatial and seasonal distributions from a few systems are available and a general pattern of global spatial distribution such as mid-high latitude vs. low latitudes is known, overall we do not have a good sense on spatial and temporal distributions.
The paper authored by Laruelle et al. synthesizes the spatial and seasonal variability of CO2 fluxes at the air–water interface for the entire North East American Land–Ocean Aquatic Continuum, from streams to the shelf break. This is the first of its kind done at the sub-continental scale. The paper is well written and easy to follow. The paper can be accepted after a moderate refinement. Most importantly, I feel the uncertainty of estuarine flux should be fully appreciated. As mentioned above we have no data from the region's largest estuaries such as the main stem of the Chesapeake Bay and the Delaware Bay (Long Island Sound and New York Bight?). The estuarine degassing flux could be much lower if these large estuaries, some of them are highly eutrophic with likely low pCO2, are included. This fact must be clearly pointed out and the associated uncertainty should be assessed or at least mentioned.

We are grateful for the reviewer's positive comments. We agree that more emphasis could be drawn onto the estuaries and the uncertainties related to their emission rates. The small number of available estimates of estuarine outgassing in the region obviously is a major limitation and it certainly is an issue that the two largest estuarine systems in the region (Chesapeake and Delaware Bays) are not included in the set of estuarine systems for which yearly FCO_2 estimates are available. We believe that, considering the available data, our method is the most appropriate to derive a 'first order' picture of the CO_2 dynamics in the estuaries of COSCAT 827 but the problem of the representativeness of our average outgassing rate should be addressed in the manuscript. As the reviewer points out, the trophic status of the Chesapeake and Delaware Bays suggests that they could be characterized by relatively low pCO_2 values and would thus reduce our regional FCO_2 estimate if included into our calculations. It should be noted, however, that the average emission rate of 50 gC m^{-2} yr^{-1} we calculate for COSCAT 827 is already relatively low compared to other regional rates calculated in similar fashion for tidal estuaries, for which the global average is 218 gC m^{-2} yr^{-1} (Laruelle et al., 2013). While a qualitative discussion of the uncertainty associated to the representativeness of the studies used to derive our regional average needs to be included in our manuscript, it is difficult to effectively quantify this uncertainty. In response to the reviewer's remark, we introduced several sentences in the discussion, in which we first discuss the potential role of the Chesapeake and Delaware Bays in the regional estuarine carbon budget and compare our emission rate to global averages.

"It should be noted that our estimate of the estuarine outgassing is derived from a limited number of local studies, none of which were performed in the two largest systems of COSCAT827, that are, the Chesapeake and Delaware Bays (>80 % of the total estuarine surface area in COSCAT827). These estuaries are highly

eutrophic (Cai, 2011), which suggests that they might be characterized by lower pCO_2 values and subsequent CO_2 exchange than the other systems in the region. On the other hand our regional outgassing of 50 gC m^{-2} yr^{-1} is already well below the global average of 218 gC m^{-2} yr^{-1} calculated using the same approach by Laruelle et al. (2013) for tidal estuaries."

Bauer, J.E., Cai, W.-J., Raymond, P.A., Bianchi, T.S., Hopkinson, C.S. and Regnier, P.A.G., 2013. The changing carbon cycle of the coastal ocean. Nature, 504(7478): 61-70.
Cai, W.-J., 2011. Estuarine and coastal ocean carbon paradox: CO2 sinks or sites of terrestrial carbon incineration? Annual Review of Marine Science, 3(1): 123-145