EGUSPHERE-2024-628

Dear editor,

Thank you for the comments and editorial work on this publication. I have included all the modifications suggested. The changes are listed below.

L36 "mobilization" was replaced by "export".

L38 "atmospheres" was modified to "atmosphere".

L38 "carbon sequestration" was modified to "oceanic carbon sequestration".

Fig. 2 caption was modified to include the explanations of all the abbreviations:

"TD denotes a standalone temperature-depth sensor, attached to the inlet. CDOM stands for colored dissolved organic matter and O_2 stands for dissolved oxygen."

L308 The extra dash was removed from the "spring—summer"

L363 "remain" was modified to "remains"

L370, L371, L374, L377 The unit was corrected from " $gC\ m^{-2}\ s^{-1}$ " to " $gC\ m^{-2}\ y^{-1}$ "

L371 The subscript in "CO2" was corrected to "CO_2"

L526 An acknowledgment for the referees and editor was added:

"We thank two anonymous referees and the associate editor Frédéric Gazeau for their comments, which improved the publication."

Fig. 4 dots denoting the thermocline depths were recolored from black to white to increase the visibility. Also, the abbreviation of CTD was explained in the caption:

"Temperature vertical profiles (colours) and the thermocline depths (white dots) at Utö for the years 2017-2021, derived from the conductivity-temperature-depth casts."

Fig. 6 "Chl-a" was modified to "Chlorophyll-a" in the caption.

Fig. 8 The "winds peed" in the caption was corrected to "wind speed".

Fig. 9 The "pCO_2" was replaced by "CO_2 partial pressure". Also, the different flux values were explained:

"(a) Daily means of the CO_2 partial pressure in the seawater at the depth of 4.5 m at Utö in 2017-2021. (b) Monthly average CO_2 air-sea fluxes: the 5-year average fluxes constructed using both eddy covariance and parametrization (black), the 5-year average eddy covariance fluxes (gray) and the fluxes for different years using both eddy covariance and parametrization (other colours). The error estimates are explained in the Appendix."

Best regards,

Martti Honkanen