Response to Reviewer **10.10.2025**

We would like to sincerely thank the reviewer for their thoughtful and constructive feedback on our manuscript. We greatly appreciate the time and effort dedicated to evaluating our work. Below, we address each point raised and describe the corresponding revisions made.

1) I follow the comment by one of the referees that many of the figures only appear in the discussion. I think the figures in the discussion are appropriate, but I am missing the figures in the results section, while the results figures are added to the supplement. While I agree that the surface figures (S7, S9 and S11) are best placed in a supplement (the information discussed in the text can be drawn from the profiles together with Figure 1), I would suggest to move Figures S6, S8 and S10 to the main text, to make it easier for the reader to follow the results section, without continuously having to go back and forth between main text and supplement.

We moved the figures to the appropriate sections.

2) I also think that Figures S1-S5 can be combined into one or two figure(s) showing temperature, salinity and oxygen (row) for each transect (column). I explicitly left out potential density here as this is not discussed in the main text (section 3) and can thus remain in the supplement. This new suggested figure in the main body could then replace Figure 2.

We combined the water profiles as suggested and included them as Fig. 2.

3) Line 69: first appearance of pCO2 - please replace with partial pressure of CO2 (pCO2)

This was changed as suggested.

4) Line 172: "Limits of detection (LOD) and limits of quantification (LOQ)" - please briefly explain what this means

We added the following definition (L174): “The LOD is defined as three times the standard deviation (3 × SD) of the blank measurements and represents the lowest concentration that can be reliably distinguished from background noise, though not necessarily quantified with precision. The LOQ is defined as ten times the standard deviation (10 × SD) and represents the lowest concentration that can be quantitatively determined with acceptable accuracy and precision (DIN e.V., 2008).”

5) Line 185: "Values below LOD were replaced with a random value between zero 185 and LOD." I think this needs some more explanation/justification (e.g. in form of a reference) for the wider audience

We added two references about methods for replacing data below LOD/LOQ (L188): “As a minor proportion of the total observations (< 3 %) were below the LOD or LOQ, a single imputation method was applied (Helsel, 2005; Jain, 2016). Values below the LOD were replaced with a random value between zero and the LOD, while values below the LOQ were replaced with a random value between the LOD and LOQ.”

6) Line 189: "Guttman-Kaiser" criterion and "broken stick analysis" - please explain in more depth or add a reference for the wider audience

We added the appropriate references (L193): “Three principal components (PCs) were selected based on the Guttman-Kaiser criterion and the scree plot, retaining only those with eigenvalues

greater than 1 (Bro and Smilde, 2014). A broken stick analysis was performed to evaluate the significance of variable loadings and identify which variables are associated with specific PCs (Peres-Neto et al., 2003).”