Thank you for submitting the updated manuscript. As referred to by the reviewer, there were still some language issues in the previous version, some of which have not yet been resolved. Please again carefully check through the manuscript for English language copy editing, including making corrections for the list below, which may not be complete. See also the separate notes by the review file validator about the map credit for figure 1.

Throughout   Sometimes it is "Chl-a" and sometimes "Chl a" (no dash) – please check through and be consistent.

Throughout   "in situ" does not need to be italicised.

1   Italicise the p in $p\mathrm{CO_2}$ in the title.

17   Remove 1 at end of name (Santana-Casiano).

29   Subscript the sw in $p\mathrm{CO_2}$,sw.

30   "Interannual" implies comparing one year with another rather than a long-term trend – consider replacing "interannual increase" with (e.g.) "increasing trend".

52    $p\mathrm{CO_2}$ missing the sw?

88, 89   Missing spaces before brackets (MLR and MNR).

114    $p\mathrm{CO_2}$ missing the sw?

122    $F\mathrm{CO_2}$ not yet defined.

137   "at a depth" should be "from a depth" (the analyser is not at 7 m).

149-150   Should be "**A** detailed description…" or "Detailed description**s**…"

162-167   Much of this paragraph reads like it is a figure caption (and indeed is repeated in the Fig. 1 caption) – consider revising to avoid replication.

170   "fluxes computation" should be "flux computation".

177   "sections" should be "sites"?

203-204   "it was not seasonally dependent, as it has been found in the long time record at ESTOC" is ambiguous – does it mean

(1) "like the long-term record at ESTOC, it was not seasonally dependent", or

(2) "differently from the long-term record at ESTOC, it was not seasonally dependent"?

Please revise the sentence to be clear.

205   Remove comma after pH_T.

212   Remove extra full stop in the middle of the line.

214   Can $f\mathrm{CO_2}$ be removed here? It does not appear to have been used in the analysis.

224-225   "were fitted to harmonic functions" => "was fitted to a harmonic function" or remove "Each of" from the start of the sentence.

227, 229   "seasonal detrended" => "seasonally detrended"

228   "de-seasonal" should be "seasonally detrended"? (or de-seasonalised).

236   "Models" => "Model"

240   "data was" => "data were"

248-249   "A similar equation was considered for the $pH_{T,is}$ dependence."

Several points of ambiguity here:

- "A similar" should be "The same"? (Or was it slightly different?)
- "considered" should be "used"? (Or was it not used, just considered?)
- "the pH dependence" should be "predicting/modelling pH"?

250   Should be a colon (:) after "were used" instead of a comma.

260   Should be "Neural network**s**".

274   Italicise N.

275   Should be "number of data **points**".

275   Italicise d.

287   Remove extra full stop in the middle of the line.

Results   Please check through the tense carefully. There is a mix of past and present tense when describing results from your dataset which does not always seem to be consistent or have a clear intention.

309   "give" => "have".

330   "were lower" => "was lower".

335   "wake island" => "island wake"?

338-340   Check why this text is in red – is it supposed to be revised somehow?

348   "considering" => "including".

349   "of them" => "model".

449-450   "Three oceanographic variables, SST, Chl-a and MLD, with high satellite resolution for oceanic surface seawater..." is phrased awkwardly; revise to e.g. "Three oceanographic variables with high satellite resolution for oceanic surface seawater (SST, Chl-a and MLD)...".

463   "maximum and minimum" => "minimum and maximum".

492   Missing space after "in situ".

502   Double full stop at end of paragraph.

504   "is" => "was"

533   "Gando **B**ay" (capital B)

535   "decreases" => "decreased"

569   Delete double comma.

573   Delete "levels".

616   "shorter" => "smaller".

622   Delete "of".

649   Add comma after "models".

700-704   Please consider using the CRediT taxonomy for reporting author roles (https://publications.copernicus.org/services/contributor_roles_taxonomy.html).