

## Response to Editor

### Minor comments (MC)

**MC1:** “Abstract: line 10 cause an intense submesoscale process. Singular or plural?”

**Answer MC1.** Plural. It was corrected.

**MC2:** “Line 85: The Ekman transport “Wek” and the rotational (“rot”) are both vectors and should be either in bold or with an arrow (as chosen by the authors)”.

**Answer MC2.** Corrected.

**MC3:** “Line 106: Please replace “while in (Efimov et al., 2008), authors” by “Efimov et al., 2008 documented”.

**Answer MC3.** Corrected.

**MC4.** “Line 119: The Black Sea nutricline...;”

**Answer MC4.** Corrected.

**MC5:** “Figure 1d, Please specify the convention for the sign of the velocity”.

**Answer MC5.** The convention for the sign of the velocity was added: “positive values - the velocity is directed upwards”.

**MC6:** “Line 204: Please remove "however " since the section is starting”.

**Answer MC6.** Corrected.

## Response to reviewer

### Minor comments (MC)

**MC1:** “Lines 76-78: please rephrase these sentences. (Please find another argument - not the absence of "the data on absorption coefficient of yellow substance" - for not using the algorithm suggested by Kopelevich et al., 2014. It can be retrieved by the algorithm)”.

Just write: “However, we use a simpler approach...”

**Answer MC1.** Thank You. Corrected.

**MC2:** “Line 204: remove “However,”

**Answer MC2.** Corrected.

**MC3:** “Line 249: is “probably” required here?”

**Answer MC3.** We agree and excluded “probably” in the text.

**MC4:** “Line 318: “mortality of grazing” should it be “mortality or grazing”

**Answer MC4.** Thank you, corrected.

**MC5:** “Conclusions: I feel this part still needs minor editing. Below I list few suggestions, please feel free to accept or reject them”

**Answer MC5.** Thank You for these valuable comments. We corrected the conclusions according to Your advice.

**MC6:** “Line 380: Maybe instead of “We hypothesize that the possible reasons for domination...” you could write something like (just a suggestion)

“In addition to the aforementioned physical mechanisms, there were several biological factors underlying the observed phenomenon...”

**Answer MC6.** We agree and corrected the text.

**MC7:** “Lines 384 – 389: I would suggest removing these sentences. I do not think it is correct here to generalize the finding of the paper onto other areas (lines 385-386)”.

**Answer MC7.** We decided to rest this text in the final paragraph of the paper to emphasize that the described here processes can be potentially important in another part of the World Ocean. However, we agree that this requires special regional investigations.

**MC8:** “Lines 386 – 389: better suits to the “Introduction” part”.

**Answer MC8.** We decided to rest this text in the final paragraph of the paper to emphasize the potentially important role of the described here short-period processes on the succession of phytoplankton species and trophic interaction.

**MC9:** “Lines 389 – 391: I suggest minor editing “Further detailed investigation on the response of the phytoplankton community to short-term physical process would strongly benefit from continuous data .... Or

“For further detailed investigation of the response of the phytoplankton community to short-term physical process, continuous data of ... are required.”

**Answer MC9.** Corrected.

**MC10:** “Lines 392 – 394: you can remove the reference to Xi et al., 2020; or you can add more, since definitely it is not the only study dealing with satellite-based phytoplankton group retrievals; or just refer to a review paper

Bracher, A. et al. (2017): Obtaining Phytoplankton Diversity from Ocean Color: A Scientific Roadmap for Future Development., *Frontiers in Marine Science*, 4 (55). doi: 10.3389/fmars.2017.0005  
You might want to emphasize a need of a regional (Black Sea) algorithm development”.

**Answer MC10.** We agree and corrected the text according to Your comment.