

Thank you for your letter of response to the reviewers and for submitting a revised manuscript. The changes you have introduced solve some of the interpretation problems highlighted by the reviewers. While the information available is not sufficient to determine unequivocally the mechanism responsible for the lack of seasonality in integrated chl_a concentration, your comprehensive dataset is valuable and contributes to advance our understanding of the biological oceanography of subtropical pelagic ecosystems. I am therefore recommending publication of your manuscript in Biogeosciences, subject to minor revisions. Please take into account the editorial comments below when preparing the final version of the article.

(Authors' response) We thank the editor for his comments and for recommending the publication of the manuscript in Biogeosciences. All editorial comments have been taken into account and are presented below in a point-by-point manner. We would also like to draw your attention to the fact that Dr. Victor F. Camacho-Ibar is now in the list of authors of the paper. All former authors consider his contribution to be important and merits his inclusion as a co-author of the paper. We hope there is no problem in doing that. The acknowledgments section was changed accordingly.

(Editor) p. 2 line 3 Phrase 'the GOM, as a whole, is a contrasted trophic environment' is vague. What is a 'trophic environment'? Please re-write; if what is meant is that, overall, the region is oligotrophic, just say so.

(Authors' response) The sentence p. 2 line 3 was rewritten "*From a biogeochemical point of view, the deep waters of the GOM are considered oligotrophic (...)*" instead of "*From a biogeochemical point of view, the GOM, as a whole, is a contrasted trophic environment. The deep basin and the continental shelf are considered oligotrophic (...)*".

(Editor) p.2 line 19: There are more recent studies highlighting the importance of changes in phytoplankton chlorophyll content: Behrenfeld et al. 2016 Nature Climate Change 6 323, Jakobsen and Markager (2016) Limnol. Oceanogr., 61: 1853–1868. Also the review by Halsey and Jones 2015 (Ann Rev Mar Sci) is relevant here. Note also that phytoplankton chl_a content changes not only in response to light, but is also sensitive to nutrient availability and temperature.

(Authors' response) We thank the reviewer for his suggestions. The references mentioned above were added in the manuscript, p.2 line 19.

(Editor) p.3 lines 4-5 What is measured here is fluorescence. Correct phrase is 'chlorophyll fluorescence', not 'fluorescence chlorophyll'

(Authors' response) "*fluorescence chlorophyll*" was replaced by "*chlorophyll fluorescence*".

(Editor) page 3, lines 12. Here authors should state which are those mechanisms.

(Authors' response) The sentence p.3 line 12 has been rewritten following editor's suggestions. "*(...) would be associated with a vertical redistribution of subsurface chlorophyll and/or photoacclimation processes.*" instead of "*(...) would be associated with other mechanisms described and analyzed in the following sections.*".

(Editor) page 3 End of Introduction: remove 'This is the most important result of our study' (not informative).

(Authors' response) The sentence was removed.

(Editor) page 4, lines 15-16. Confusing description of method. What is 'above 0.9 times the mixed layer'? The MLD is a depth, say 50 m. Then $0.9 \times 50 = 45$ m. Would this mean that the value of CHL at 45 m is extrapolated to the surface? Please clarify, bearing in mind that 'mixed layer' is not the same as 'mixed layer depth'.

(Authors' response) We agree with the editor that the sentence is unclear. What we wrote in the manuscript meant to be "mixed layer depth", not "mixed layer" and we thank the editor for noticing this confusion. Thus, p. 4, line 15-16, the sentence was rewritten: "*The method consists in finding, within the layer between the surface and 0.9 times the mixed layer depth (MLD), the highest FLUO value ($FLUO_{max}$) and its depth ($FLUO_{z,max}$). $FLUO_{max}$ is then extrapolated from $FLUO_{z,max}$ (considered as a proxy of the thickness of the layer potentially affected by the NPQ) up to the surface.*" Instead of "*The method consists of extrapolating the highest FLUO value, encountered above 0.9 15 times the mixed layer, up to the surface.*".

(Editor) page 4 line 29 'timeS'

(Authors' response) Done.