

Bremen, February 04th 2021

Associate Editor

Biogeosciences

Dr. Ny Riavo G. Voarintsoa

Subject: comments by Referee 2 on revised version of MS bg-2020-336.

Dear Dr. Voarintsoa:

We thank for the speed revision of our revised manuscript bg-2020-336. We are glad that Referee 1 agreed on the revised version.

Here, we comment on Referee 2's suggestions. We must admit that we are confused regarding the posted comments. As you certainly are able to check on our file uploaded on Jan 19th 2021 (file = *bg-2020-336-manuscript-version4.pdf*), the issues raised by Ref 2 in her/his review of Nov 16th 202 were (i) thoroughly addressed before submitting the revised version and (ii) responded, commented and/or discussed in the file '*Final reply to BGD Comments _ Rev 2_bg_2020_336*', also uploaded on Jan 19th 2021. Below we comment (*in red italics*) on each of the issues raised by Ref 2.

RC2: What is the reason to use the term pelagial rather than pelagic? Although used for lakes I have not seen any paper that defends/justifies its use for the ocean environment.

AC: we will rephrase accordingly and use pelagic instead of pelagial throughout the MS.

The term is still used in the new version that was submitted.

New AC: we had replaced 'pelagial' for 'pelagic' throughout in the revised version uploaded on Jan 19th 2021.

RC2: The use of satellite images (composites for the n_ of years considered for each specific time interval / diatom phase) for comparison would also be important to verify the variability on the surface water and upwelling conditions.

AC: three pictures of chlorophyll a concentration have been added to Figure 1 (attached). They depict the average concentration of chlorophyll a for three winters (1997, 2002 and 2008), gained with SeaWiFs and MODIS (<https://oceancolor.gsfc.nasa.gov/cgi/l3>, details will be provided in the revised version of the MS). The high interannual variability is clearly recognized.

The figure 1 associated to the response letter does not correspond to the figure in the uploaded version, that is still the figure of version 1

New AC: the revised Figure 1 showed three satellite pictures (1b-c), which represent the average winter season of three years.

RC2: Figure 4: Comparison of (a) clusters extracted from multivariate analysis with the environmental

forcing variables (a1: Total diatom flux; a2: AMO; a3: Shannon diversity). Besides being too small and difficult to see, total diatom Flux and Diversity are not forcing variables. They all reflect the community adaptation to the regional conditions resulting from the forcing factor(s).

AC: we will rephrase this accordingly. NAO, AMO, ENSO and the diversity index C9 BGD Interactive comment Printer-friendly version Discussion paper Shannon-Weaver are indices while the total diatom flux is a variable. This was wrongly described in the original submission. The file resolution of Fig. 4 will be enlarged.

Not really done. The figure has the same exact size!

New AC: a larger (highly resolved) file for this figure was in the pdf file [bg-2020-336-manuscript-version4.pdf](#). In case its resolution is not high enough, we will upload a larger file for the ready-to-print version.

New Notes

352 - Based on outstanding shifts in the species-specific composition of the diatom assemblage occurred throughout the study interval (Fig. 2b). We propose three main intervals in the multiyear.... First sentence does not make sense. I believe the second sentence should follow without the full stop after Fig 2b.

AC: this sentence reads in the revised MS file (l. 377-379): 'Based on outstanding shifts in the species-specific composition of the diatom assemblage occurred throughout the study (Figs. 2b and 3), we propose three main intervals in the multiyear evolution of populations and discuss them in view of mayor environmental forcings:...'

395 - Fig. 4). The dominance of benthic taxa also prevails (after) afterward throughout until recently recovered traps at site CBmeso (Oscar E. Romero, unpublished data).

AC: this does not correspond with the line numbering in the revised version.

399 – 403 Paragraph needs rewriting

AC: line 399 is the end of a paragraph and l. 400 – 403 contains the first two sentences of the next paragraph. These two sentences seem quite correct to us.

424 – 428 Paragraph needs rewriting

AC: The sentences at the beginning of this paragraph seem correct to us.

We hope that these comments help you to clarify this confusion.

With best wishes,



Oscar E. Romero
and co-authors