

### **General comments:**

Dehwah et al. investigated the vertical profiles of concentrations of transparent exopolymer particles (TEP) and other forms of organic matter in the Saudi coast of the Red Sea as well as microbial cell abundances and several kinds of hydrological parameters. The results showed that particulate TEP concentration (p-TEP) decreased at a diminished rate with depth compared to other organic matter compositions, indicating that it persists in moving organic carbon deeper into the water column. The vertical distributions of diverse organic matter compositions, the relationships between TEP and microbes, and the microbial impacts on organic carbon transport into the ocean are indeed worth studying. However, I am not convinced for its publication in BG with the current form. My major concerns are shown below.

1. Many paragraphs need to be re-written for a clear logic. The results section need to be re-organized to focus on main/important findings.
2. The uses of algae, picoplankton, cyanobacteria, and *Prochlorococcus* are completely confusing, making this manuscript hard to understand.
3. The analysis is too simple and the conclusions are too speculative only based on regression analysis.

### **Specific comments:**

Lines 54 to 56: What's the meaning of "biomass"? particulate organic material or bacteria? Hard to understand.

Lines 91 to 94: This paragraph should be incorporated into the next paragraph.

Lines 110 to 113: The compiled data were published already? If yes, citations need to be added. If not, use the data as new data.

Line 121: Where is the site D? not shown in Fig 1.

Lines 136 to 140: This paragraph should be incorporated into the previous sensors part.

Lines 144 to 147: This paragraph should be incorporated into the next paragraph.

Lines 146 to 147: delete.

Lines 148 to 149: This sentence should be placed before "Algal cell counting.....".

Lines 151 to 152: This sentence should be placed in the next paragraph of bacteria counting.

Lines 156 to 157: The use of algae, cyanobacteria, *Prochlorococcus*, and pico/nanoplankton is very confusing! Cyanobacteria include *Prochlorococcus* and *Synechococcus*; picoplankton include cyanobacteria and pico-eukaryotes. Algae include cyanobacteria here? These confusions need to be clarified throughout the manuscript.

Lines 191 to 192: The size ranges were repeated in the introduction section. Delete here.

Line 231: This part is too long and wordy. The authors should emphasize the key points related to the conclusions.

Lines 283 and 366: Descriptions of the two sections are very confusing. Please see my comment above.

Line 285: the sum of what?

Line 286: Cyanobacterial abundances are not shown in Table 1.

Lines 348 and 389 to 392: Which samples are offshore samples and which are nearshore samples? clarify.

Line 364: Discussion section included many results descriptions and needs to be reorganized to focus on the deep discussion.

Lines 396 to 401, 405 to 405, 437 to 439, and 454 to 458: too speculative! There is no supporting evidence. Only vertical distributions of parameters and regression analysis are not enough.

Lines 406 to 408: Is there overlap between biopolymers and TEP? If so, there is an internal correlation between them. The significance of regression analysis means nothing.

Lines 431 to 432: The data are from the published paper? insert citations.

Lines 464 to 471: this part belongs to the result descriptions.

Table 1: give references; indicate what mean for total algae.

Table 2: Which kind of regression analysis? Which samples are nearshore and offshore samples respectively? Why do many p-values of  $<0.05$  correspond to "N" (significant)?

Fig. 1: Site D is now shown.

Fig. 2: what do a) and b) indicate?

Fig. 4: the unit of salinity should be ppt.

Figs 5 and 6: need error bars. The figure legend is unclear!

Fig. 6: use dot-lines.

Fig8: needs error bars. Algae count figure is repeated.