Referee Comment No.1:

This is a clear and concise study which debunks an idea that was the topic of a few papers a decade or two ago (I am thinking of a couple papers focused on hurricanes off the US east coast or Gulf of Mexico). Those papers suggested, based on satellite chlorophyll, that hurricanes increase ocean productivity by stimulating mixing of nutrients. Of course, satellite observations only show the surface story. The float observations presented here show the full subsurface variability. This paper shows that Typhoon Trami redistributed chlorophyll vertically, giving the appearance of increased surface chlorophyll, but in fact integrated chlorophyll and backscatter did not increase. The inclusion of backscatter is important here because it can address potential confounding issues of changes in Chl:C.

Dear Reviewer,

Thank you so much for evaluating our manuscript. We truly cherish the positive feedback and hope the study can be valuable to the community. Your suggestions were important to the improvement of our work. Please find detailed point-by-point responses below. We hope the revised manuscript and responses can ease your concerns. Please let us know if you have further comments.

The paper is fairly well written, but I think the native/proficient English speakers in the author team should pay more attention to the grammar. The first 4+ lines of the results section can be deleted because they repeat earlier text. There are other areas of repetition too (not quite verbatim). It seems like the discussion and conclusions could be shortened.

Response: Thank you very much. Following your suggestion, the repetition together with some others have been removed. Additionally, we have improved the discussion and conclusion more concisely.

I have a few specific comments:

Line 51: Upwelling isn't really mentioned in the rest of the paper, so either delete mention of it here or explain how it occurs, and follow up later.

Response: Thank you for the comment. Typhoons can simultaneously induce mixing and upwelling in the upper ocean, e.g., the mixing is related to intensive wind stress, while the upwelling is induced by the strong wind stress curl. The current study mainly describes the typhoon-induced mixing that results in the redistribution of chlorophyll in the upper ocean, and the impact of upwelling is much less pronounced. We totally agree with the reviewer that the description of mixing should be emphasized, while the description of upwelling can be toned down. In the revised manuscript, the upwelling related information is modified to emphasize the contrast between mixing and upwelling. We have tried to clarify the difference in these mechanisms in the revised text (L. 56-61).

L88...: Delete "" around instrument model numbers.

Response: Done. Thanks.

L102: Explain 'less than 300km' better. Is this a 300km x 300km box? A circle of radius 300km?

Response: Thank you for the suggestion. The description is improved as follows, 'Satellite observed information near BGC-Argo was calculated by spatially averaging over a surrounding circle with a radius of 300 km, excluding areas within 10 km of land.' (L. 116-118)

L122: 10m intervals ... line 91 says 1m.

Response: Thank you for pointing out the inconsistency. The vertical sampling frequency is indeed 1 m, which can be revealed from the detailed vertical structure (e.g., the MLD in Figure 2). We have corrected the mistake (L. 105-106).

L133: 0.18 and 0.15 are 0.13 and 0.08 higher than pre-September 29. I don't understand.

Response: Thank you for noticing this issue. Different dates before the arrival of typhoon can be used as a reference. For example, the value a week before the typhoon, e.g., September 23, was 0.05 mg/m^{3,} and that the day right before the typhoon, e.g., September 29, was 0.07 mg/m^3. Thus, the change in chlorophyll on September 30 and October 3 compared with that on September 23 was 0.13 mg/m^3 and 0.1 mg/m^3, respectively. In addition, the change in chlorophyll compared with that on September 29 was 0.11 mg/m^3 and 0.08 mg/m^3, respectively. We apologize for mixing up the differences, and we have updated the numbers using September 29 as the reference to make them consistent throughout the text (L. 163-166).

Figures: It's difficult to see much of an increase in shallow Chl in Fig 2b. The increase is more obvious in Fig 4b but that figure also made me wonder why there is an increase above the base of the mixed layer before Sep 30.

Response: Thank you for asking. We agree with the reviewer that the change in shallow Chl can hardly be distinguished from Figure 2b, because the figure is mainly describing the prominent decrease of subsurface chlorophyll maximum (SCM). The change in surface Chl is clearly captured in Figure 2d, which is further compared with the satellite observations. On the other hand, the increase in Chl above the base of the mixed layer (ML) is actually related to the deepening of the ML, which is induced by increasing wind (Figure 3a). The climatological depth of the ML for the study site, derived from the World Ocean Atlas (WOA; Locarnini et al., 2018) following the method of Kara et al. (2000), is 30 m, 46 m and 66 m in August, September and October, respectively. Thus, the elevated subsurface Chl is at least related to the gradual deepening of the ML (Figure 2b), which simultaneously increases the subsurface temperature (Figure 4a). The process is different from the typhoon induced dynamics that tends to decrease temperature and increase Chl at the surface while increase temperature and decrease Chl at the subsurface. Moreover, the movement of BGC-Argo, though it travels a small distance, can end up in a different environmental, which can be captured in the profile. In particular, BGC-Argo was moving northward during the study period and the background information varied slightly. The corresponding information is added to the discussion (L. 149-154).

Reference:

Kara, A. B., P. A. Rochford & H. E. Hurlburt. 2000. An optimal definition for ocean mixed layer depth. J. Geophys. Res., 105(C7), 16803-16821.

Locarnini, R.A., A. V. Mishonov, O. K. Baranova, T. P. Boyer, M. M. Zweng, H. E. Garcia, J. R. Reagan, D. Seidov, K. Weathers, C. R. Paver & I. Smolyar. 2018. World Ocean Atlas 2018, Temperature. A. Mishonov Technical Ed.; NOAA Atlas NESDIS 81, 1, 52 pp.