We sincerely thank the Editor and the reviewers for their careful evaluation of our manuscript and for their constructive comments and valuable suggestions. Following the suggestions, we have revised the manuscript by providing a more detailed description of the OCNET product, including a discussion of its limitations and uncertainties, clarifying the role of dust-related synoptic forcing, and improving the statistical analyses to account for autocorrelation. These revisions have strengthened the clarity and robustness of the manuscript. Below, we address the reviewers' comments, with the reviewers' comments shown in black and our responses in blue. All corresponding revisions have been incorporated into the revised manuscript, and the relevant line numbers in the clean version of revised manuscript are provided throughout this response.

Reviewer 1:

The manuscript investigates the contrasting Chl-*a* responses to spring dust events in the Chinese marginal seas and highlights the potential role of dust-related synoptic circulation and air–sea heat exchange. The topic is interesting and relevant to both atmospheric and marine biogeochemical communities. The manuscript is generally well organized, and the analyses provide useful insights into the coupling between synoptic forcing, upper-ocean mixing, and phytoplankton variability. However, there are several issues that require the author to provide detailed explanations or clarifications. The manuscript is recommended for publication after the following revisions and clarifications are addressed.

Response: Thank you for reviewing our manuscript and for your constructive comments. Following your suggestions, we have strengthened the manuscript by providing a more comprehensive description and discussion of the applicability and uncertainties of the OCNET Chl-*a* product, revising the statistical significance tests to account for the effects of temporal autocorrelation, and updating the relevant results and figures accordingly. We have also clarified several descriptions throughout the manuscript to better highlight the role of dust-related synoptic circulation, as well as corrected grammatical errors and improved the overall presentation. Point-by-point responses to your comments are provided in blue below.

Major Comments:

1. The applicability and uncertainty of the OCNET reconstructed Chl-*a* dataset should be described in more detail. Although the manuscript provides the overall reconstruction accuracy (R^2=0.93), additional information regarding the methodology and data sources of the OCNET product would help improve the clarity of the dataset and its suitability for this study. In particular, since the OCNET framework incorporates multiple environmental variables and reanalysis fields as predictors, it would be useful to further clarify which variables and datasets were used in the reconstruction process and to discuss the potential uncertainties associated with applying such a reconstructed product to synoptic-scale analyses. A brief discussion and more details in the Data and Methods or Discussion section would strengthen the robustness of the study. If possible, an additional comparison with satellite products or validation results within the study regional area would further support the robustness of the findings.

Response: Thank you for your constructive comment. We agree that the OCNET product warrants a fuller description and uncertainty discussion.

OCNET (Hong et al., 2025) reconstructs daily surface Chl-*a* by integrating satellite ocean-color products, BGC-Argo profiles, and key environmental variables through a deep learning approach, producing a gap-free global daily Chl-*a* dataset. In previous studies, the model demonstrates strong agreement with satellite-based observations (R^2 = 0.93; relative bias = 4.09%; RMSE = 0.237) (Hong et al., 2023; 2025). Notably, the key physical variables driving our proposed mechanism, including surface winds, air–sea humidity and temperature gradients, turbulent heat fluxes, and net surface heat flux, are absent from the OCNET input variables, and the MLD incorporated in OCNET is derived from the monthly ORAS5 product, distinct from the daily CMEMS GLORYS12V1 product used in our analysis. These differences reduce the risk of circularity between the reconstructed Chl-*a* and the physical drivers examined in this study.

Following your suggestion, we further evaluated the OCNET product against Daily Level-3 merged Chl-*a* products (25 km resolution, AVW merging algorithm, MERIS/MODIS/SeaWiFS) from the ESA GlobColour project (https://hermes.acri.fr/). As shown in Fig. R1, satellite observations over the Chinese marginal seas suffer from substantial data gaps, with missing rates generally exceeding 80% in coastal waters and approaching 100% in some nearshore regions (Fig. R1a), reflecting the inherent limitations of satellite retrievals in cloudy and optically complex coastal waters (Feng and Hu, 2016). Consequently, only approximately 100–300 collocated valid daily observations are available for comparison across most grid cells (Fig. R1b), making it difficult to investigate phytoplankton variability on daily timescales using the satellite observations alone.

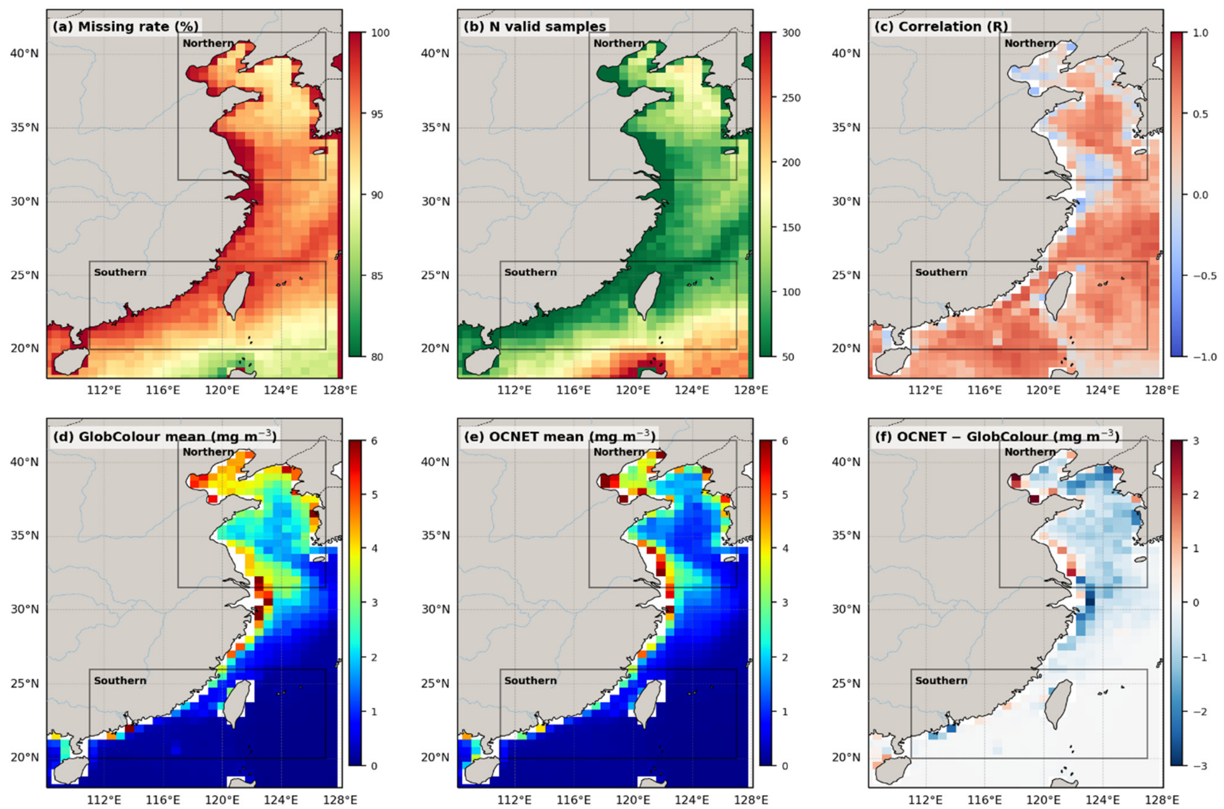

Figure R1. Spatial comparison between the GlobColour daily Level-3 merged Chl-*a* product and the reconstructed OCNET Chl-*a* product over the Chinese marginal seas. (a) Missing rate of the GlobColour observations during the study period. (b) Number of collocated valid daily samples used for comparison between GlobColour and OCNET. (c) Spatial correlation coefficient (R) between the two products based on collocated observations. (d) Climatological mean spring Chl-*a* derived from GlobColour. (e) Climatological mean spring Chl-*a* derived from OCNET. (f) Mean difference between OCNET and GlobColour (OCNET − GlobColour).

Despite these limitations, OCNET shows good agreement with the available GlobColour observations over the study region. The climatological mean spring Chl-*a* distributions derived from the two products are generally consistent (Figs. R1d and R1e), with relatively small mean differences across most shelf regions (Fig. R1f). Spatial correlations exceed 0.5 over most of the study area (Fig. R1c), with generally stronger agreement and smaller biases in the Southern Region than in the optically more complex Northern Region. These results indicate that OCNET reliably reproduces the large-scale spatial distribution of Chl-*a* while substantially improving spatial coverage, making it well suited for investigating short-term phytoplankton responses in the Chinese marginal seas.

Following your suggestion, we have added a more detailed description of the OCNET Chl-*a* product in the Methods section (Lines 83–91), together with an additional discussion of its applicability and associated uncertainties in the Discussion section (Lines 424–440, Fig. S1).

2. The role of dust versus dust-related synoptic circulation should be clarified. The manuscript primarily emphasizes synoptic-scale atmospheric circulation anomalies, air–sea heat exchange, and mixed-layer responses associated with dust outbreaks. In this regard, some of the phrasing in the manuscript may benefit from placing more emphasis on the role of dust-related synoptic forcing, rather than the direct physical and chemical effects of dust aerosols. A clearer description of how the observed Chl-*a* anomalies are linked to the accompanying synoptic conditions during dust events, rather than solely to dust aerosol loading itself, would help strengthen the overall conceptual clarity of the study, particularly in the Abstract, Introduction, and Conclusions sections. Some related wording and phrasing are also provided in the minor comments below.

Response: We thank the reviewer for this helpful comment and fully agree that clearer framing would strengthen the manuscript. In the revised manuscript, we have updated the related phrasing in the Abstract, Introduction, and Conclusions to better emphasize the role of dust-related synoptic forcing, rather than the direct physical and chemical effects of dust aerosols per se. We have also noted in the Discussion section that, while previous studies have primarily emphasized nutrient supply and aerosol deposition effects, the present study focuses on synoptic-scale atmospheric forcing and air–sea heat exchange associated with dust outbreaks, and that the biogeochemical processes are not explicitly quantified here (Lines 416–423). The relevant revisions can be found throughout the manuscript (e.g., Lines 12, 62, 74, 404), and further details are also provided in the responses to minor comments below.

3. Clarification of statistical significance testing for daily correlations. Some parts of the manuscript (e.g., Fig. 2) present daily lag correlations between DOD and Chl-*a* anomalies. Since daily atmospheric and oceanic variables often exhibit temporal autocorrelation, the significance testing should consider the effect of reduced effective degrees of freedom. Was the autocorrelation-adjusted significance test taken into account? A clarification of statistical significance testing for daily correlations should be included to

enhance the robustness of the statistical analysis.

Response: Thank you for this constructive suggestion. We agree that temporal autocorrelation in daily time series may affect the effective degrees of freedom and should be taken into account when assessing the statistical significance of correlations. Following your suggestion, we have revised the significance testing throughout the manuscript (Figs. 2, 3, 4, 6, 7, and 10).

Specifically, we adopted the effective sample size (Neff) correction proposed by Pyper and Peterman (1998). This method estimates the effective degrees of freedom from the autocorrelation functions of both time series and uses Neff instead of the nominal sample size when evaluating the significance of the Pearson correlation. The resulting Neff values are consistently smaller than the nominal sample size, providing a more conservative assessment of statistical significance. This method explicitly accounts for temporal autocorrelation in both the DOD and Chl-*a* anomaly series and has been widely applied in climatological and oceanographic time-series analyses to provide more reliable significance estimates (e.g., Pershing et al., 2015; Barker et al., 2016).

The updated significance testing does not alter the main conclusions of the study. The spatial patterns of correlations remain qualitatively consistent with those reported in the original manuscript, with only minor reductions in the extent of significant areas in a few regions under the more conservative significance test. We have also added the related description in the Methods section (Lines 113–114).

Minor Comments:

1. Line 11: “Here we investigate the response of Chl-*a* (Chl-*a*) to spring dust optical depth (DOD)” suggest to be revised to “investigate the response of Chl-*a* (Chl-*a*) to spring dust events, characterized by dust optical depth (DOD),” since DOD is primarily a metric rather than the forcing itself.

Response: We thank the reviewer for this suggestion. We agree that DOD serves as a metric to characterize dust event intensity rather than the direct forcing itself, and have revised the phrasing accordingly (Line 12).

2. Line 13: “We find contrasting Chl-*a* responses to DOD” may place too much emphasis on DOD itself as the direct driver. Consider revising to “We find contrasting Chl-*a* responses to dust synoptic events” or “We find contrasting relationships between Chl-*a* anomalies and DOD”.

Response: We thank the reviewer for this suggestion. We have revised the phrasing accordingly (Line 13).

3. Line 21: “Net surface heat flux exhibit the strongest negative correlation” should be revised to “Net surface heat flux exhibits the strongest negative correlation.”

Response: We thank the reviewer for correction. We have corrected to ‘exhibits’ (Line 21).

4. Line 57: “though the response vary depending on” should be revised to “though the response varies depending on.

Response: We thank the reviewer for correction. We have corrected accordingly (Line 57).

5. Line 62: Consider revising “In addition to the direct nutrient supply associated with dust deposition...” to “Beyond the direct biogeochemical pathway of nutrient supply...” to improve the transition from biogeochemical effects to physical mechanisms.

Response: We thank the reviewer for this suggestion and have adopted the revised phrasing, which improves the transition from biogeochemical to physical mechanisms (Line 62).

6. Lines 74–75: “This study examines the response of Chl-*a* to spring dust variability” may be revised to “This study examines the response of Chl-*a* to synoptic atmospheric forcing associated with spring dust events.”

Response: We agree and have revised the sentence accordingly, which more accurately reflects the focus of this study on synoptic atmospheric forcing associated with dust events rather than dust variability per se (Line 74).

7. Line 94: The sentence “The net surface heat flux (Qnet) was calculated as the sum of these four components and is defined as positive downward” contains inconsistent tense usage. Consider revising to “The net surface heat flux (Qnet) is calculated as the sum of these four components and is defined as positive downward.”

Response: We thank the suggestion and have corrected the tense inconsistency accordingly (Line 99).

8. Line 129, Figure 2: Please check and clarify whether temporal autocorrelation was considered in the significance testing.

Response: We thank the reviewer for this comment. In the revised manuscript, temporal autocorrelation has been accounted for by adopting the effective sample size (Neff) correction following Pyper and Peterman (1998), as described in our response to Major Comment 3.

9. Line 133: Terms such as “Northern Region/northern region” and “Southern Region/southern region” appear inconsistently capitalized throughout the manuscript. Please check and revise the formatting.

Response: Thanks for the comment. We have carefully checked the entire manuscript and standardized the capitalization to "Northern Region" and "Southern Region" throughout.

10. Line 175: “These contrasting temporal patterns suggest that the Chl-*a* response to dust differ substantially between the two regions” should be revised to “the Chl-*a* response to dust differs substantially between the two regions.”

Response: We thank the suggestion and have corrected accordingly (Line 189).

11. Line 98: Consider including some references that have applied this product (GMEMS) in MLD studies, particularly over marginal seas.

Response: We thank the reviewer for this suggestion. We have added relevant references that have applied the CMEMS global ocean physics reanalysis product in mixed-layer depth studies over the Chinese marginal seas (Lines 105–106).

12. Line 230: The term “dust onset” may not be fully appropriate, especially for multi-day dust events. Since lag 0 appears to correspond more closely to the DOD peak day rather than the actual initiation of the event, please consider using terms such as “dust-event day”, “peak dust day” for improved clarity and precision.

Response: We thank the reviewer for this suggestion. We have added an explicit definition at the first occurrence of "dust onset" in the text: "lag 0 is defined as the day on which the DOD exceeds the 95th percentile threshold" (Lines 129–130).

13. Line 382, Figure 10: The manuscript uses the 95% significance level in most analyses, whereas Figure 10 adopts the 99% significance level. Please consider using consistent significance criteria throughout the manuscript, or clarify the reason for using different thresholds. In addition, please check and clarify whether the significance testing accounts for the potential influence of temporal autocorrelation.

Response: We thank the reviewer for identifying this inconsistency. In the revised manuscript, we have unified the significance threshold to the 95% level throughout, with significance assessed using the Neff correction following Pyper and Peterman (1998) to account for temporal autocorrelation (as described in our response to Major Comment 3).

14. Line 368: “deeper mixing facilitates upward nutrient entrainment and promotes phytoplankton growth”, suggest revising to "promotes phytoplankton biomass accumulation" or “favors elevated Chl-*a* concentrations”, since the analysis is of Chl-*a* anomaly variability.

Response: We thank the reviewer for this suggestion and have revised the phrasing accordingly (Line 386).

15. Lines 386–387: “This study examines how spring dust events influence daily Chl-*a* anomalies” may be revised to “This study examines how synoptic atmospheric forcing accompanying spring dust events influences daily Chl-*a* anomalies.”

Response: We agree and have adopted the suggested revision, which better captures the focus of this study on synoptic atmospheric forcing accompanying dust events (Line 404).

16. Line 395: “These findings highlight the role of dust-associated atmospheric forcing in modulating short-term phytoplankton variability through air–sea heat exchange and upper-ocean mixing, and provides an insight into ecosystem responses” should be revised to “and provide an insight into ecosystem responses.”

Response: We thank the comment have corrected "provides" to "provide" in the revised manuscript (Line 414).

17. Several abbreviations are defined more than once in the manuscript. For example, DOD, MLD and SST are defined in the Abstract, Data and Methods section but re-defined in the Results section. Please ensure each abbreviation is defined only at its first occurrence and used consistently thereafter.

Response: Thanks for the suggestion. We have carefully checked the entire manuscript and ensured that each abbreviation is defined only at its first occurrence and used consistently thereafter throughout the main text.

References:

Barker, L. J., Hannaford, J., Chiverton, A., and Svensson, C.: From Meteorological to Hydrological Drought Using Standardised Indicators, Hydrology and Earth System Sciences, 20, 2483–2505, https://doi.org/10.5194/hess-20-2483-2016, 2016.

Feng, L. and Hu, C.: Comparison of Valid Ocean Observations Between MODIS Terra and Aqua over the Global Oceans, IEEE Transactions on Geoscience and Remote Sensing, 54, 1575–1585, https://doi.org/10.1109/tgrs.2015.2483500, 2016.

Hong, Z., Long, Di, Li, X., Wang, Y., Zhang, J., Hamouda, M. A., and Mohamed, M. M.: A Global Daily Gap-filled Chlorophyll-*a* Dataset in Open Oceans During 2001–2021 from Multisource Information Using Convolutional Neural Networks, Earth System Science Data, 15, 5281–5300, https://doi.org/10.5194/essd-15-5281-2023, 2023.

Hong, Z., Long, Di, Shan, K., Zhang, J.-M., R. Iestyn Woolway, Liu, M., Mann, M. E., and Fang, H.: Declining Ocean Greenness and Phytoplankton Blooms in Low to Mid-latitudes Under a Warming Climate, Science Advances, 11, https://doi.org/10.1126/sciadv.adx4857, 2025.

Pershing, A. J., Alexander, M. A., Hernandez, C. M., Kerr, L. A., Le Bris, A., Mills, K. E., Nye, J. A., Record, N. R., Scannell, H. A., Scott, J. D., Sherwood, G. D., and Thomas, A. C.: Slow Adaptation in the Face

of Rapid Warming Leads to Collapse of the Gulf of Maine Cod Fishery, Science, 350, 809–812, https://doi.org/10.1126/science.aac9819, 2015.
Pyper, B. J. and Peterman, R. M.: Comparison of Methods to Account for Autocorrelation in Correlation Analyses of Fish Data, Canadian Journal of Fisheries and Aquatic Sciences, 55, 2127–2140, https://doi.org/10.1139/f98-104, 1998.

Reviewer 2:

This manuscript investigates the spatial and temporal responses of chlorophyll-a to spring dust optical depth across the Chinese marginal seas from 2003 to 2023. By utilizing daily anomalies from reanalysis products and a reconstructed gap-filled Chl-*a* dataset (OCNET), the study delivers an important and timely message: synoptic-scale atmospheric forcing and air–sea heat exchanges act as crucial physical pathways modulating regional upper-ocean stratification and biological variations, rather than focusing solely on the commonly studied nutrient fertilization effects. The manuscript is generally well-written, clearly structured, and addresses a topic of significant relevance to marine atmospheric chemistry and coastal ecology.

The contrasting patterns discovered between the Northern Region (cyclone-induced warming and moisture leading to initial Chl-*a* suppression and delayed enhancement) and the Southern Region (anticyclone-induced cooling and drying leading to rapid mixed-layer deepening and immediate Chl-*a* increase) are scientifically compelling and robustly analyzed. Overall, the manuscript is suitable for publication in the journal after addressing a small number of minor comments. In particular, some technical descriptions would benefit from enhanced clarity, and the quantitative interpretations should be slightly tempered given the uncertainties inherent in the reanalysis products. These are relatively minor issues that can be readily addressed in revision.

Response: Thank you for reviewing our manuscript and for your constructive and encouraging comments. Following your suggestions, we have strengthened the manuscript by providing a more comprehensive evaluation and discussion of the applicability and uncertainties of the OCNET chlorophyll-a product over the Chinese marginal seas, together with additional validation analyses against satellite observations. We have also clarified several technical descriptions, improved the presentation of the figures, and corrected grammatical errors throughout the manuscript. Point-by-point responses to your comments are provided in blue below.

Specific comments

Regarding data and methodology clarification, the authors utilize the OCNET neural network ensemble to generate a gap-free daily Chl-*a* product. Although the dataset shows strong overall agreement with satellite-derived Chl-*a*, the present analysis focuses on optically complex coastal waters and short-lived dust events. Please clarify whether, and if so how, OCNET performance has been evaluated for Chinese marginal seas and under high-DOD conditions, when the original oceancolour retrievals may be limited or affected by aerosol contamination. A brief discussion of potential smoothing of localized episodic extremes and the resulting uncertainty in event-scale Chl-*a* anomalies would help contextualize confidence in the short-term responses.

Response: Thank you for your constructive comment. We agree that the applicability of the OCNET product in optically complex Chinese marginal seas and during episodic dust events warrants further clarification. The performance of the OCNET product has been evaluated in previous studies against both satellite and in situ observations, demonstrating good skill (R^2 = 0.93; relative bias = 4.09%; RMSE = 0.237) in reconstructing gap-free daily Chl-*a* fields (Hong et al., 2023; 2025). Following the reviewers' suggestions, we have added an additional evaluation over the Chinese marginal seas using the daily Level-3 merged Chl-*a* product (25 km resolution) from the ESA GlobColour project, generated using the Average Weighted (AVW) merging algorithm from multiple satellite sensors.

As shown in Fig. R1a, the missing rate of the daily GlobColour observations during spring generally exceeds 80% over coastal regions and nearly approaches 100% in some nearshore areas, suggesting the inherent limitations of satellite observations in cloudy and optically complex coastal waters. Consequently, the number of collocated valid daily samples available for comparison is limited to no more than 300 across most grid cells (Fig. R1b). Based on the available collocated observations, good agreement is shown between OCNET and GlobColour. The climatological mean spring Chl-*a* distributions are generally consistent (Figs. R1d–f), with spatial correlation coefficients exceeding 0.5 over most of the study region (Fig. R1c). Stronger agreement is observed in the Southern Region than in the Northern Region, where the waters are more optically complex. Overall, these results indicate that OCNET generally reproduces the large-scale spatial distribution of Chl-*a* and, by providing continuous daily coverage, overcomes the substantial data gaps that limit satellite observations in coastal waters.

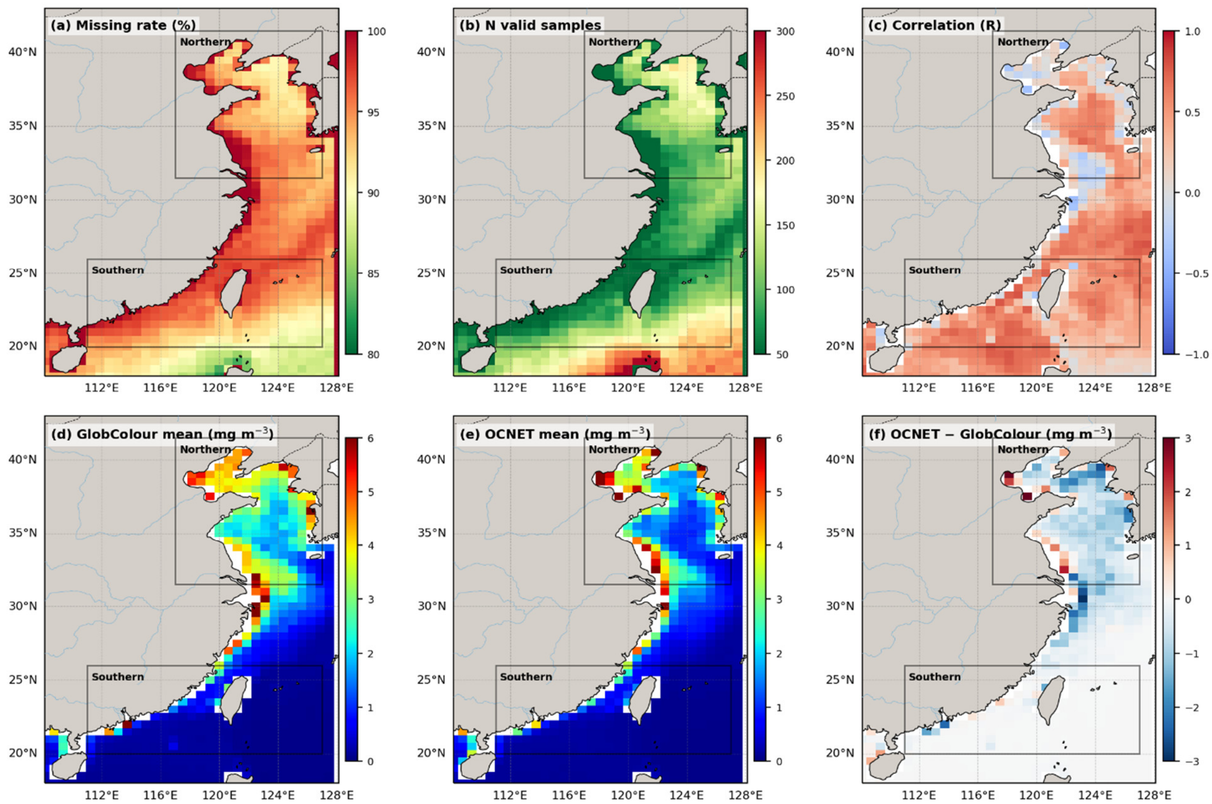

Figure R1. Spatial comparison between the GlobColour daily Level-3 merged chlorophyll-a product and the reconstructed OCNET chlorophyll-a product over the Chinese marginal seas. (a) Missing rate of the GlobColour observations during the study period. (b) Number of collocated valid daily samples used for comparison between GlobColour and OCNET. (c) Spatial correlation coefficient (R) between the two products based on collocated observations. (d) Climatological mean spring chlorophyll-a derived from GlobColour. (e) Climatological mean spring chlorophyll-a derived from OCNET. (f) Mean difference between OCNET and GlobColour (OCNET − GlobColour).

To further evaluate the robustness of OCNET during dust events, we compared OCNET and GlobColour using collocated valid satellite observations under all-, low-, and high-dust conditions (Fig. R2). Overall, OCNET reproduces the observed Chl-*a* variability well in the Southern Region under all conditions (R = 0.93, slope = 0.79–0.85), whereas agreement is relatively lower in the optically more complex Northern Region (R = 0.64–0.77, slope = 0.50–0.74), indicating that OCNET generally captures Chl-*a* variability in the Chinese marginal seas, particularly over the less optically complex southern shelf. Across dust conditions, agreement remains largely comparable, with only a slight reduction under high-dust conditions in the Northern Region, while the Southern Region remains consistently high. It should be noted that regression slopes are consistently below 1, and that both the scatterplots and boxplots show a smaller standard deviation and narrower value range for OCNET than for GlobColour. This suggests a modest smoothing of localized Chl-*a* variability, a common feature of machine-learning reconstructions that infer missing observations from surrounding spatial and temporal information. We therefore acknowledge that the reconstructed Chl-*a* product is subject to greater uncertainty in optically complex coastal waters and that the smoothing effect may slightly attenuate short-term Chl-*a* variability. A corresponding discussion has been added to the revised manuscript (Lines 424–440, Fig. S1–S2).

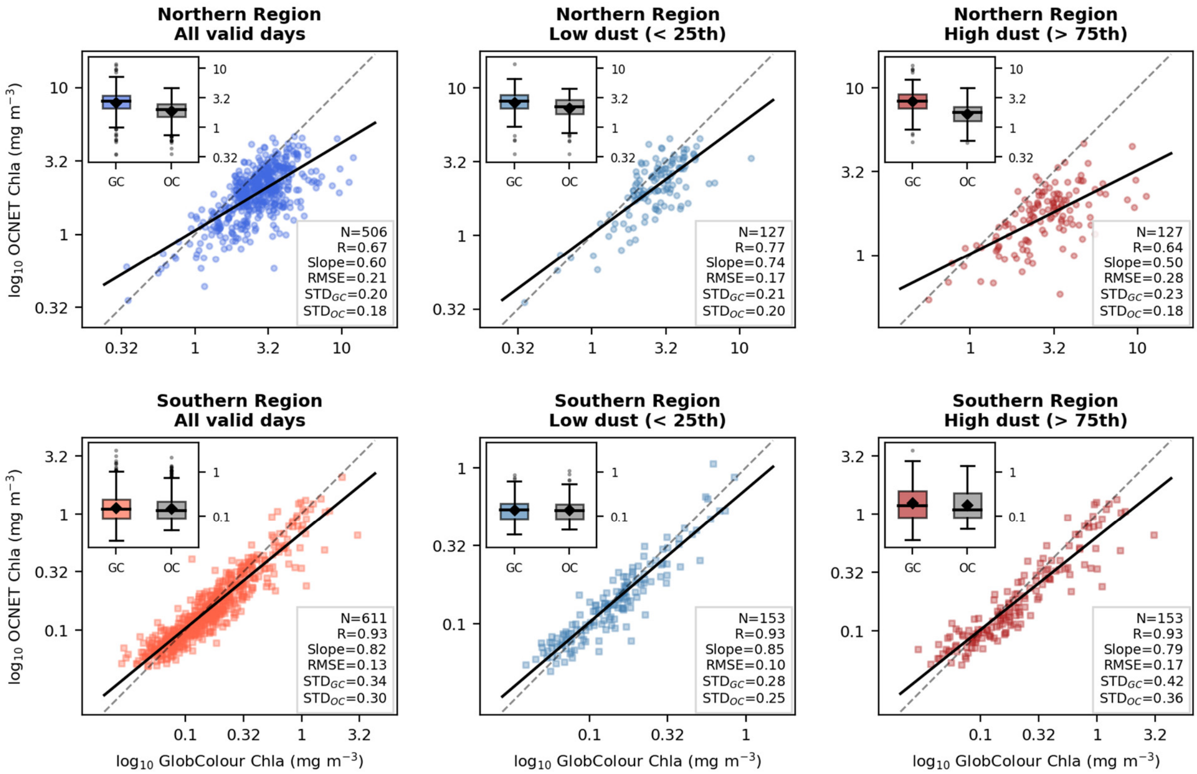

Figure R2. Comparison of chlorophyll-a between OCNET and the GlobColour observations using collocated valid samples over the northern (upper panels) and southern (lower panels) Chinese marginal seas under all observations, low-dust conditions, and high-dust conditions. The dashed line represents the 1:1 relationship, and the red line denotes the linear regression fit. Insets show boxplots of chlorophyll-a distributions for GlobColour (GC) and OCNET (OC). The corresponding statistics, including the number of collocated samples (N), correlation coefficient (R), regression slope, root-mean-square error (RMSE), and standard deviation (STD), are shown in each panel. To ensure sufficient sample size for statistical comparison, low- and high-dust conditions were defined as the 25th and 75th percentiles of daily DOD calculated from the collocated valid samples, respectively.

Line 47: “Sea of Japan” should be revised to “Sea of Japan / East Sea.” Including “East Sea” follows international naming practice and improves geographic neutrality and accuracy.

Response: We thank the reviewer for this suggestion. We have revised "Sea of Japan" to "Sea of Japan / East Sea" to follow international naming conventions and improve geographic neutrality (Line 47).

Line 57: "though the response vary" -> "though the responses vary"

Response: Thank you for catching this grammatical error. We have corrected "the response vary" to "the responses vary" in the revised manuscript (Line 57).

Line 91: "which obtained from" -> "which was obtained from".

Response: Thank you for this correction. We have revised "which obtained from" to "which was obtained from" in the revised manuscript (Line 95).

Line 175: “response to dust” à “responses to dust”

Response: Thank you for this correction. We have revised "response to dust" to "responses to dust" in the revised manuscript (Line 191).

Line 344: "contribute comparatively minimal" -> Please revise to "contribute comparatively minimally".

Response: Thank you for this suggestion. We have revised "contribute comparatively minimal" to "contribute comparatively minimally" in the revised manuscript (Line 360).

Figure 1: It would be helpful to label the locations of major regional seas, such as the Bohai Sea and Yellow Sea, on the map to improve readability of the study area.

Response: We thank the reviewer for this helpful suggestion. We have added labels for the major regional seas, including the Bohai Sea and Yellow Sea, to the map in Figure 1 to improve readability and clarity of the study area (Figure 1).

Figure 8: The temporal ordering of the lag-day bars is not immediately clear. Please add explicit lagday labels or ticks to make the evolution from lag 0 to lag 10 easier to interpret.

Response: We thank the reviewer for this comment. We have added explicit lag-day labels/ticks to Figures 8-9 to clearly indicate the temporal progression from lag 0 to lag 10, making the evolution of the chlorophyll-a response easier to interpret (Figures 8-9).

References:

Hong, Z., Long, Di, Li, X., Wang, Y., Zhang, J., Hamouda, M. A., and Mohamed, M. M.: A Global Daily Gap-filled Chlorophyll-*a* Dataset in Open Oceans During 2001–2021 from Multisource Information Using Convolutional Neural Networks, Earth System Science Data, 15, 5281–5300, https://doi.org/10.5194/essd-15-5281-2023, 2023.

Hong, Z., Long, Di, Shan, K., Zhang, J.-M., R. Iestyn Woolway, Liu, M., Mann, M. E., and Fang, H.: Declining Ocean Greenness and Phytoplankton Blooms in Low to Mid-latitudes Under a Warming Climate, Science Advances, 11, https://doi.org/10.1126/sciadv.adx4857, 2025.