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Earth System Science Data

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5th September 2025

Dear Editor,

Thanks for your support with this article. We created a new version of the dataset following the recommendations from the second round of review. The new submitted manuscript contains only minor changes to the text describing the identification of outliers and removing text on the previous report of data flags. In the following, you can find a detailed response to the comments from reviewer 2.

Reviewer 2

Unfortunately, the revisions do not sufficiently address the issue of the smoothing function flag. I will try to explain the problem in more detail. The MPI-BGC network referred to in the response does contain a flag column; the flag column description in the header of the file reads: good flask replicate average, possibly not representative for large-scale background. While I fundamentally disagree with adding interpretation to observational datasets, this description is very clear and easy to understand. In this work, the values are still described as outliers, and a user would have to very carefully read the entire paper to understand that all data has passed quality assurance and reflects normal variability. In the referenced database that contains the dataset, the flag description is not immediately apparent (it is a click away), and it is misleading. The description still refers to the data that is flagged as anomalous. Most users would assume they should only use the unflagged part of the dataset. All methods to determine baselines from observations are a matter of choice; there is no correct or standard approach. Forcing this choice on the data user, even unintentionally, could lead to biases in their work. In my opinion, the simplest way to avoid confusing what is a baseline flag column with a bad data quality flag is to remove the column entirely. At the very least, the nomenclature and description of that baseline flag would have to be much more neutral (e.g., possibly not background, as in the MPI-BGC network referenced). The description would have to be consistent within the dataset and the paper. Even if a user only downloads the dataset, the fact that this is an interpretation and not a data quality flag needs to be immediately apparent. I am happy with all other changes and satisfied that the other comments are addressed.



We understand the concern of the reviewer, and following her/his recommendation, we decided to remove the columns with the flags from the dataset. The new dataset only contains the value of the measured variables together with their uncertainties. We agree that the previous flags are an interpretation of the variability of the data and it is not appropriate to report it with the data.

However, for the purposes of plotting the data in the article, we kept the identified outliers and explain in the text how these outliers were identified. The outliers in the plot are our own interpretation of the data, and does not interfere with other interpretations from data users, who do not see these marked outliers in the final released dataset.

The new version of the dataset can be obtained at the ATTO data portal <https://www.attodata.org/ddm/data/Showdata/574> A final doi will be created upon acceptance and we will add it to the final submission version.

We hope that with this change the article can now be accepted for publication.

Best regards,

Carlos A. Sierra, on behalf of all coauthors