

## **Authors' responses the second round of comments from RC1 and RC2**

Dear Associate Editor Prof. Dr. Carol Robinson, dear two anonymous Reviewers,

We are grateful for the overall positive feedback on the revised manuscript version (re-submitted in September 2021) and the further suggestions for improvement. Please find below our replies to the Referees' comments (our replies are in [blue](#)).

Yours sincerely,  
Hana Jurikova

### **Responses to Reviewer 1 (bg-2020-448-referee-report-1)**

We carefully considered all suggestions indicated in the annotated pdf document and incorporated the highlighted improvements into the newly revised manuscript version.

### **Responses to Reviewer 2 (bg-2020-448-referee-report-2)**

In summary, the following main points were raised by the RC2 during the second round of reviews, which we addressed attentively in the newly revised manuscript version and provide our responses to below.

#### **1. Supplement and data availability**

Given that our dataset is a rather small to moderate in size, we would prefer to keep it in as Supplement accompanying our manuscript rather than making it available in a separate repository. This should not affect the accessibility to our data in any form. As provided in the journal's guidance for submission preparation (<https://www.biogeosciences.net/submission.html>): "Moderate-size data sets may be presented as supplements, but this should be cleared with the editor." We would be grateful if at the Associate Editor's discretion it was possible for us to keep it in the current format.

Furthermore, the Referee requested that the following information is archived. Our responses to the specific requests are provided below, in summary, however most of this information was already available in the previously revised Supplement or main manuscript text.

Authors should archive the following:

- 1) Date and time of each sample (since they discuss in the paper that time of day is important; note the date of the final profile is incorrectly listed as April 25th, 2016; the year should be 2015) – the date has been corrected during the previous revision (September 2020). We did not include the time as the exact time for when the dissolved oxygen sampling was carried out is not available. We have now however added the time to the CTD casts.
- 2) latitude and longitude – latitude and longitude was included during the previous revision round to Table S1 (see cells C6, C7), and is also mentioned in the manuscript text.
- 3) all CTD data used in the paper: exact depth/pressure, temperature, salinity, O<sub>2</sub>, chlorophyll fluorescence for each sample discrete 17Δ sample, as well as the high-resolution profiles plotted in Fig 4. – again, during the previous revision round these were included as Table S2 in the Supplement.

4) optional: mixed layer depth, wind speed, and k values used to calculate – during the previous revision round these were added to the main manuscript text, and the wind speed data were included as Table S3 in the Supplement.

GP/NP and the final GP and NP results, and a description of how each was calculated – these were included in the main manuscript text (Table 1).

Copernicus Publications requests depositing data that correspond to journal articles in reliable (public) data repositories, assigning digital object identifiers, and properly citing data sets as individual contributions. Please find your appropriate data repository in the registry for research data repositories: re3data.org.”

determined. – please see our above reply.

5) Define in the metadata how  $17\Delta$  is calculated (what lambda is used) – available in the main manuscript text (lines 138-140).

## **2. Gas exchange parametrisation**

In our initial submission the parametrization of Ho et al. (2006) was used. However, at a later stage of the manuscript revision (while updating the wind speeds and the approach for calculating K following Reuer et al. 2007) we realised that the parametrization of Wanninkhof et al. (2009) would now be a more appropriate choice. Unfortunately, at that point the Response Letter has already been submitted and were not able to change this in our responses. We sincerely apologise for the confusion caused and thank the Reviewer for pointing this out.

## **3. Ar and size correction**

We have now further clarified this, please see lines 145-170 in the newly revised manuscript text.

## **4. Additional suggestions to the text**

We thank for these additional suggestions, which were incorporated into the newly revised manuscript text.