

Data Paper

Ryosuke Makabe and Kunio T. Takahashi. Chlorophyll *a* and macronutrient concentrations during the icebreaker *Shirase* cruise of the 61st Japanese Antarctic Research Expedition. *Polar Data Journal*. 2022, 6, p. 25–31. <http://doi.org/10.20575/00000038>.

(Received 4/6/2021; Accepted 5/11/2022)

1st submission

Editor Start Date: 2/27/2022

Editor Stop Date: 3/30/2022

Reviewer #1 (2/28/2022–2/28/2022)

Reviewer #2 (3/7/2022–3/30/2022)

Reviewer #1: Anonymous

Makabe and Takahashi made a dataset of temperature, salinity, chl.*a*, nutrients and PAR during JARE-61 cruise and described on the details of the data. The dataset has good format and the documentation on the data is well written. Therefore, I recommend to publish this submission in *Polar Data Journal* after a few minor revisions.

1. L.147: Porra et al. (1989) did not describe on a fluorometer calibration. They reported chl.*a*-specific absorbance in some solvents. Probably, chl.*a* concentration standard in DMF was determined using a spectrophotometer and the chl.*a*-specific absorbance (Porra et al., 1989).
2. I could not understand the value, 0.149. This is not a range.
3. "N, N" of N, N-dimethylformamide is better to be italic. (L85 and reference)
4. Please check journal name and abbreviation in references.

Letters: Lett.

Journal: J. (Polar Data J.?)

In 1989, "BBA-Bioenergetics" was not issued. It was just "Biochimica et Biophysica Acta" (Biochim Biophys. Acta?)

Jpn.: Japan?

Reviewer #2: Anonymous

Dear authors,

The manuscript is well written and worth publishing in PDJ. Before the publication, I recommend the author make some minor corrections. My specific comments are listed below.

1. L61-62: Better to show the location of Stn L7 in Fig.1 with a different symbol.
2. L71-72: I guess CTD cast was conducted at 9 stations
3. L78-81&L93-94: Better to provide sampled depths and the number of layers.
4. L134: Please check the unit of fluorescence. $\mu\text{g L}^{-1}$ is used for concentration. Is it converted to Chl a concentration?
5. L145-147: spectrophotometer is used to determine chl a concentration of the standard, not for the calibration. Please describe the correct method for the calibration.

Authors Response:

Dear editor of Polar Data Journal,

We revised the MS according to reviewer's comments as followings (in red).

Sincerely,

Ryosuke Makabe

Response to reviewer #1;

Makabe and Takahashi made a dataset of temperature, salinity, chl a , nutrients and PAR during JARE-61 cruise and described on the details of the data. The dataset has good format and the documentation on the data is well written. Therefore, I recommend to publish this submission in Polar Data Journal after a few minor revisions.

1. L.147: Porra et al. (1989) did not describe on a fluorometer calibration. They reported chl a -specific absorbance in some solvents. Probably, chl a concentration standard in DMF was determined using a spectrophotometer and the chl a -specific absorbance (Porra et al., 1989).

Reply: Thank you for important comment. I have revised the sentence as "The fluorometer was calibrated using a chlorophyll a standard (Fujifilm Wako Pure Chemical Corp., Osaka, Japan) in N, N-dimethylformamide at an onshore laboratory before the cruise, using a spectrophotometer and the chl. a -specific absorbance (Porra et al., 1989) (Fig. 2).".

2. I could not understand the value, 0.149. This is not a range.

Reply: 0.149 is the minimum during the calibration. So, we have changed the sentence as "All fluorescence measurements were higher than the minimum value validated by calibration (0.149) and samples with fluorescence values higher than 700 were diluted.".

3. "N, N" of N, N-dimethylformamide is better to be italic. (L85 and reference)

Reply: Corrected accordingly.

4. Please check journal name and abbreviation in references.

Letters: Lett.

Journal: J. (Polar Data J.?)

In 1989, "BBA-Bioenergetics" was not issued. It was just "Biochimica et Biophysica Acta" (Biochim Biophys. Acta?)

Jpn.: Japan?

Reply: Sorry. I have corrected from “Letters” to “Lett”. And I have confirmed the others are correct.

Response to reviewer #2;

Dear authors,

The manuscript is well written and worth publishing in PDJ. Before the publication, I recommend the author make some minor corrections. My specific comments are listed below.

1. L61-62: Better to show the location of Stn L7 in Fig.1 with a different symbol.

Reply: I have added “☒” for Stn. L7. And “The conductivity–temperature–depth (CTD) cast at Stn. L7 (60°S, 150°E) was canceled due to inclement weather.” was added the Figure caption for explanation.

2. L71-72: I guess CTD cast was conducted at 9 stations

Reply: Corrected accordingly.

3. L78-81&L93-94: Better to provide sampled depths and the number of layers.

Reply: Sampling depths have been added. And we have added “The water sample from 200 m depth was not used for the size-fraction measurements.” to state clearly that size-fraction chl. a did not conduct for samples from 200 m depth.

4. L134: Please check the unit of fluorescence. $\mu\text{g L}^{-1}$ is used for concentration. Is it converted to Chl a concentration?

Reply: Thank you for the critical comment. I have deleted the unit of fluorescence. This values is not converted chl. a values by using our chl. a measurement (calculated using an equation provided by the Sea-Bird Scientific).

We have deleted the unit of “FLUOR” from data files (csv.) at ADS, and also deleted from MS.

5. L145-147: spectrophotometer is used to determine chl a concentration of the standard, not for the calibration. Please describe the correct method for the calibration.

Reply: We changed the sentence as “The fluorometer was calibrated using a chlorophyll a standard (Fujifilm Wako Pure Chemical Corp., Osaka, Japan) in N,Ndimethylformamide at an onshore laboratory before the cruise, using a spectrophotometer and the chl. a-specific absorbance (Porra et al., 1989) (Fig. 2).”.

2nd submission

Editor Start Date: 4/13/2022

Editor Stop Date: 5/11/2022

Reviewer #1 (4/13/2022–4/13/2022)

Reviewer #2 (4/13/2022–5/10/2022)

Reviewer #1: Anonymous

The authors have responded well to my comments and sufficiently revised the manuscript. Thank you very much. I think the manuscript is now ready for publication in Polar Data Journal.

Reviewer #2: Anonymous

Dear authors,

Please accept my apology for the late review. The MS has been revised properly that is worth publishing.

Editorial Office's note

Calculate checksum date: 5/13/2022

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