

Earth Syst. Sci. Data Discuss., referee comment RC1  
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## Review of **essd-2022-41**

Anonymous Referee #1

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Referee comment on "The Green Edge cruise: investigating the marginal ice zone processes during late spring and early summer to understand the fate of the Arctic phytoplankton bloom" by Flavienne Bruyant et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-41-RC1>, 2022

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This article by Bruyant and co-authors describes the data set collected by the Green Edge cruise team in Baffin Bay during late spring/early summer 2016.

The data set itself is extensive and multipartite and a significant contribution to the available observations around phytoplankton blooms in the Arctic. Here, I am solely commenting on the article itself (and not the data).

While the overall structure and writing of the article are adequate, I was somewhat taken aback by the substantial number of typographical and formatting errors and inconsistencies. This makes the reading a more arduous process than necessary and is particularly lamentable given the large number of co-authors who apparently did not read the text with care.

The collection, management, and archiving of such a large-scale and complex data set requires great care and attention to detail (as the authors emphasize in Section 7). To instill confidence in the data set I believe it paramount that the accompanying article is also crafted with care and attention to detail.

I note that the author contribution statement provides a detailed overview of data collection and analysis but does not discuss who actually wrote the article.

I recommend publication after careful and thorough copy-editing and consideration of my comments below.

(Please note that this is not a comprehensive list of copy-editing issues).

General comments:

1. The main confusing part for me was the relation between this article, the ice camp article, and the data sets stored on SEANOE:

- In my understanding there was a previous, separate ESSD article on the Green Edge ice camps: Massicotte et al 2019 (<https://essd.copernicus.org/articles/12/151/2020>)
- And a companion data set, entitled "The Green Edge initiative: understanding the processes controlling the under-ice Arctic phytoplankton spring bloom", also by Massicotte et al 2019 (<https://www.seanoe.org/data/00487/59892/>)

- Then there is the present article on the Green Edge cruise: Bruyant et al 2022 (<https://essd.copernicus.org/preprints/essd-2022-41/>)
- But what is the companion data set? The article on l.76 and l.483 refers to the data set above by Massicotte et al 2019 (<https://www.seanoe.org/data/00487/59892/>). Does that mean both articles describe different parts of the same data set?
- Or is the companion data set to this article the much earlier one by Bruyant et al 2016 "The Green Edge cruise: following the evolution of the Arctic phytoplankton spring bloom, from ice-covered to open waters" (<https://www.seanoe.org/data/00752/86417/>)? This would make sense, since the abstracts for the article and this early data set are basically identical. But the 2016 SEANOE entry is not mentioned anywhere in the ESSD article.

Please clarify! It is striking that this article is about a data set and it is unclear what the data set is or where to find it.

2. Relatedly, it would be helpful to get an overview of what papers have been published on what subsets of the data so far. Maybe add a table?

3. There are a couple of points where you reference data that were collected as part of this effort but that are stored elsewhere (not with the main SEANOE data set), e.g., l.137, l.315. It might be worth adding a table or similar to provide an overview of where all data is to be found? Or at least add those separately stored data links to the data availability statement.

Some detailed comments:

l.72 misplaced comma

I.74 Canadian Arctic should be capitalized (capitalization issues throughout the article)

I.75 "data set" or "dataset" ? (be consistent throughout)

I.76 not just spring, maybe write "late spring/early summer"?

I.77 There is no Massicotte et al (2019a) in the list of references. Nor a Massicotte et al (2019), which is referenced numerous times later in the text. There is only Massicotte et al (2020), which is the article on the Green Edge ice camps. Do you mean to cite the Bruyant et al (2016) SEANOE data set here?

I.81 It seems a little odd to speak of a MIZ when there is no perennial ice pack (presumably marginal ice is at the "margin" of something). Maybe rephrase that it may all be seasonal ice in 20 years?

I.100 "Leg 1A" rather than "Leg1A" (space missing)

I.101 "Leg 1B" rather than "leg 1B" (also, since there are only 2 legs, why not call them leg 1 and leg 2?)

I.126 "were" instead of "was"

I.156 "presented" rather than "represented"

I.163 "First, the raw data were screened to eliminate" revise to "First, the raw data were screened to identify and where possible eliminate" (?)

I.169 "e.g.," rather than "ex."

I.203 "Eicken et al, 2009" is not in the references. Instead you're citing the article by Ackley (2010) which reviews the Eicken et al (2009) book. Replace that entry with "H. Eicken, F., Gradinger, R., Salganek, M., Shirasawa, K., Perovich, D. and Lepparanta, M, eds. Field techniques for sea-ice research. University of Alaska Press, 2009."

I.209 "SBE 911plus" rather than "SBE-911Plus"

I.232 "in situ" rather than "In situ"

I.249 ")), sky" (space after ")))" )

I.251 "the ocean optics protocols" Which ones? Should this read "the ocean optics protocols of Mueller et al (2003) and Mobley (1999)", or similar?

I.262 "Sea-Bird SBE 19plus"

I.268 and throughout: please write units using superscripts

I.295 Please revise this sentence.

I.309 "station G719" Can you comment on this nomenclature at some point prior in the text? I assume this is transect 700 station 19? What does the "G" mean?

I.317 "Leg 1B"

I.343 first use of "SCM" - define "subsurface chlorophyll maximum"

I.391 either use "(i), (ii), (iii)", or "i), ii), iii)"

I.400 It's unclear here what is meant by "not possible"

I.414 just delete "Leg 1" ? The whole cruise consistent of Leg 1 (A and B), correct? And 10 June - 8 July spanned both A and B?

I.420 It is strange that this paragraph couches the discussion in terms of "articles in

preparation", something that is not done anywhere else in the article. I would suggest revising this.

l.427 define "DCM"

l.434 "St 409 and St 418" - this refers to transect 4 stations 9 and 18? Please make consistent with previous nomenclature

l.577 incomplete reference

l.578 incomplete reference

l.665 reference formatting issues

Fig.1 Resolution of font is poor. It would also be helpful here to indicate with shading which side of Baffin Bay is ice covered. I was surprised to learn that all floats survived the same number of days - could you mention why? It would help for panel B if you zoomed in on the survey region to show some more of the details.

Fig.3 Blurry, figure labels and legends not readable

Fig.4 Also blurry, I would also recommend using a different colormap for the bathymetry to differentiate the plots.

Fig.5 Would it make sense to have panel A span the time period of Leg 1A and panel B that of Leg 1B ?

Fig.7 I recommend making the colormap divergent (or otherwise have an abrupt change) around 0 so it is obvious which stations were located in open water and which in the ice

Fig.10 Blurry

Fig.13 Missing panel labels. Also, caption should be consistent in label formats - either (a),(b),(c), or A,B,C