

Jiang et al.'s *Data reporting and sharing for ocean alkalinity enhancement research* presents a framework for preparing, presenting and archiving data and metadata for ocean alkalinity enhancement (OAE) research, primarily through the use of existing controlled vocabularies and current best practices used in environmental data management. Overall, the framework presented appears comprehensive and well thought out. Below, I provide a few comments and suggestions for consideration prior to publication.

**Response:** Many thanks for reviewing this paper and for the kind words.

Minor comments:

Throughout the piece, the authors refer to their work as a “chapter”. Is this the correct terminology? The Copernicus platform seems to refer to the submissions and publications as “reports”, but also refers to them as “papers”.

**Response:** The confusion stems from a change in editorial instructions. We have replaced chapter with paper on all occasions.

Line 84: “... it is recommended” – this is recommended by whom? A citation here would be appropriate.

**Response:** We have added two citations here: Tanhua et al. (2019) and Brett et al. (2020). See Line 87.

Line 87: fCO<sub>2</sub> here refers to CO<sub>2</sub> fugacity, but it may be worth mentioning that other communities use fCO<sub>2</sub> to refer to the flux of CO<sub>2</sub> across an interface (e.g., sea-air interface, biosphere-atmosphere interface)

**Response:** Two new sentences have been added as recommended. See Lines 91-93.

“Note that other communities may use  $F_{CO_2}$  to refer to the flux of  $CO_2$  across an interface (e.g., sea-air interface, biosphere-atmosphere interface). It is recommended to use an italicized  $f$  for fugacity and a capital  $F$  for fluxes.”

Line 109: “... as with the other data standards”. Do all data standards permit the addition and removal of relevant/irrelevant columns? A few example data standards here would be useful.

**Response:** Yes, all data standards are designed for best practice recommendation purposes only. We have removed this sentence to avoid confusion.

Box 1: “Refer to Chapter 4.6 for more context.” It is not clear what this refers to. A citation and reference to the material in question would be useful.

**Response:** It has been replaced with “Fennel et al. (2023, this Guide)”. All mentions of Chapters throughout the paper have also been addressed similarly.

Line 101: “Expectations will likely emerge through a community process”. Is there an example of where this has occurred? What is the timeframe for such a process? What feedback mechanisms could help to ensure community buy-in in this approach?

**Response:** To simplify the topic, this sentence has been removed.

Table 3 lines 5 and 6: Discrete vs. continuous and in-situ vs. manipulated. Are these the best binaries? One can imagine continuous sensor-based measurements of a manipulated experiment, but also in-situ measurements of a manipulated experiment. I tend to think of “in-situ” to be quasi-synonymous with continuous, sensor-based measurements.

**Response:** We believe these are two separate and independent concepts. *In situ* measurements can be both continuous and discrete. The same thing is true for manipulated experiments.

Table 3 line 14: Calibration info on when calibrated could be requested using ISO 8601 (yyyy-mm-dd) format.

**Response:** Following the Reviewer's suggestions, we have changed this box to "Information about how and when the sensor was calibrated (ISO 8601 format: yyyy-mm-dd)"

Table 3 Line 19: I would expect to see what QC=1 represents in the schema

**Response:** We have added "1 = not evaluated/quality unknown" to this box. For more details, check out <https://doi.org/10.3389/fmars.2021.705638>.

Table 8: Is "CTD chain" part of a controlled vocabulary?

**Response:** Considering this item offers little extra information about the sampling, we would like to leave it out. That said, these tables will be living documents. Based on the user needs, we would be happy to add it later.

Table 8: Lines 19, 22, 23: What are the criteria by which a tradename is included in the controlled vocabulary? Sea-Bird and YSI are included, but others are not.

**Response:** In instances where instrument of a particular brand is predominantly used within the oceanographic community, we have included their trademarked name for easy recognition.

Table 8 Line 37: Is there no NVS term or link for an eDNA sampler?

**Response:** Unfortunately, not. We tried our best to find their corresponding NVS terms. In a few cases, they are not available.

Line 316: "...it is recommended to upgrade existing OA data repositories to accommodate OAE data." It is not clear to me how big a lift this represents. Have the authors had conversations with OA data repository maintainers and/or managers?

**Response:** It will be dependent on the setup of the current data repository. In the case of NOAA/NCEI's ocean carbon and acidification data system, it will be a relatively small lift. All it takes are a few extra metadata elements, and some new OAE related controlled vocabularies.