

Interactive comment on “UDASH – Unified Database for Arctic and Subarctic Hydrography” by Axel Behrendt et al.

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1) Referee comments

A number of minor corrections is needed, they are listed below:

p.1 Line 7: "Data outliers, suspicious gradients, and other suspect data ... " I do not like this sentence. In a way, both the suspicious gradients and "other suspect data" can be considered as outliers. Please, reformulate.

p. 1 Line 14: The term "Arctic Mediterranean" seems to be rather uncommon and - to
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my mind - rather misleading. Was is mediterranean in the region? I would appreciate the use of a different name.

p. 1 Line 22: Why the reference to Seidov et al is needed here? It is pretty clear that the data coverage is (still) rather poor in several regions of the Polar ocean.

Page 3 Line 4: here and at several other places in the text the term "adjusted data" is used. It is not clear, what is meant by data adjustment? It looks as it is linked by the authors to the flagging of data (see page 4 line 21, page 8 line 32). However, more commonly the term is used for the elimination of the offsets in the data.

I do not like the title and the structure of the Chapter 4 (page 10) It is names "Results", but what follows is rather a description of platforms, instruments, seasonal data distribution et cet. The more proper name could be " Adescription of the validated data set" or smth. similar.

Section 4.5 Climatology (page 12) corresponds more to the title of the chapter. However, the description here is very poor, and it is only in the caption to fig.15 that the word "mean" (mean T&S distributions" appear. I would like to see a more detailed description.

2) Author's response & manuscript changes

Dear Sir or Madam,

thank you very much for the very helpful comments! Please find our comments to your suggestions below:

1. page 1, line 7: we simplified the sentence to: *Data outliers were flagged for quick identification.*
2. page 1, line 14: The reviewer is right that the name *Arctic Mediterranean* is not always used in the literature, which is, by the way, regrettable. The term Arctic Mediterranean describes perfectly the region that is encompassed by UDASH and, more importantly, it describes an ocean region that fulfills the criteria for a mediterranean in being mostly surrounded by land and opening to the adjacent ocean(s) only through shallow and narrow passages. Below we give as examples three references which explicitly use the term Arctic Mediterranean, one of them is a Science paper. The oldest one by Aagaard et al. is cited almost 600 times which demonstrates that the name is widely known. For these reasons, we want to keep the name Arctic Mediterranean.
3. page 1, line 22: the reference was removed.
4. page 3, line 4: we agree that the term *adjustment* might be misleading in this context. We replaced it by the words *validation*, *correction* or *quality check*.
5. regarding chapter 4: we changed the title to: *Description of the validated data set*.

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6. regarding section 4.5: we changed the title to: *Distribution of temperature and salinity*. The former title *climatology* was actually somewhat misleading. Commonly, the term *climatology* is used for long-term means, e.g. for maps of gridded data that were averaged over long periods of time (usually decades). Shown in Fig. 16 are just all available T and S data between 1980 and 2015, averaged over a certain depth interval. To emphasize that, we changed the caption of Fig. 16 to: *Temperature and salinity distribution in the Arctic Mediterranean Seas. The maps were obtained by averaging the data in the depth range 275–325 m for every available profile between 1980 and 2015.*

However, we did not add more text to the paragraph, as the shown distributions are well known and described in the cited literature. As the results in Fig. 16 are not new, we think that there is not much left to say at this point. Following a suggestion of the second referee, we added four more distribution plot to the figure (50 m and 1250 m depth).

Best regards,
The authors

2 March 2018

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References

Laukert, G., Frank, M., Bauch, D., Hathorne, E. C., Rabe, B., von Appen, W. J., ... & Kassens, H. (2017). *Ocean circulation and freshwater pathways in the Arctic Mediterranean based on a combined Nd isotope, REE and oxygen isotope section across Fram Strait*. *Geochimica et Cosmochimica Acta*, 202, 285-309.

Thornalley, D. J., Bauch, H. A., Gebbie, G., Guo, W., Ziegler, M., Bernasconi, S. M., ... & Yu, J. (2015). *A warm and poorly ventilated deep Arctic Mediterranean during the last glacial period*. *Science*, 349(6249), 706-710.

Aagaard, K., Swift, J. H., & Carmack, E. C. (1985). *Thermohaline circulation in the Arctic Mediterranean seas*. *Journal of Geophysical Research: Oceans*, 90(C3), 4833-4846.