

## Review response #2

We would like to thank the Anonymous Referee # 2 for the constructive and inspiring review. It will help us in improving this paper and future works.

We agree that there is no statistical significance analysis in our work, which we are going to complete. The literature research will be improved, as well as the results discussion. We consider using data from section upstream and downstream of section 'N' for better presenting our results.

### Specific comments

*Ref#2. Title It says "Nordic Seas" which includes Iceland, Norwegian and Greenland seas, but you used only one transect (according to the map in Figure 1) close to Fram Strait.*

Ans. Yes, we agree that the title is too general. It will be changed. The proposition given by Referee#2 is very good. Also abstract will be improved. In introduction, we will describe climatic importance of the Nordic Seas more widely, with more citations.

*Ref#2 Methodology You only use data from your institute. Why? Are these the only measurements. Is it due to better consistency?*

Ans. We decided to use only data from our institute, due to the data consistency. There are data collected in the same points, in the same year period, processed in the same way. It will be explained better.

*Ref#2 You analysed the trends without any significance tests which should definitely be included.*

Ans. We will include the significance analysis. All presented trends are statistically significant, with p-values less than 0.01.

We have a lot of data, however, due to the specificity of the Nordic Seas region, often due to very bad weather conditions, we are not able to complete all stations. We chose the N section because it is our longest time series and is located in an interesting hydrographically place where dense water flows both from the central part of the Greenland Sea and from Storfjord.

*Ref#2 Which time of the year? Important for discussion and comparison with global rates.*

Ans. We performed measurements exactly in the same period of time, from June 22 to July 22, each of the 20 presented years. We agree that it is very important for comparison with global rates.

*Ref#2 Trends and their unit (per decade, per year?) are missing. For better comparison it should be converted to K/psu per decade.*

Ans. Trends are calculated per two decades. In Figure 4 (lower) trends per 21 years are wrong. This is our oversight. You are absolutely right that we should use trends per decade for better comparison.

*Ref#2 Why do you have pressure on y-axis? In text you always refer to depth in m.*

Ans. We agree that we should use one unit in the article for better readability.

*Ref#2 This is a new results and should be part of the discussion of the results.*

Ans. You are right that it should not be in the summary or discussion, but in results.

Of course, we are going to improve all the oversights and introduce necessary changes.