This work presents a data set made of temperature, salinity, nitrate, phosphate and silicate concentrations at certain depth levels (0, 25 50, 75, 100, 200, etc…) at certain locations of the Sicily Channel.

The manuscript is well written and is clear. The dataset is really interesting and provides a very interesting information that will be made freely available after the publication of the present manuscript. For all these reason I find that it is suitable for publication in Earth Science Data after the correction of some minor questions.

Detailed comments:

The abstract is clear and reflects what the reader is going to find in this work.

the introduction is well written and focuses the reader on the subject of this work. There are only some minor questions.

Lines 15-17 does not seem clear to me.

Lines 18-20. “The thermohaline circulation is not driven only by the balance between the fresh water entering at the Strait of Gibraltar and the negative freshwater budget over the whole Mediterranean”. The thermohaline circulation is driven by the negative freshwater budget and the net heat loss over the whole Mediterranean. The entrance of freshwater through the Strait of Gibraltar is the consequence of these two deficits: freshwater and heat. On the other hand, the freshwater balance is not only between the freshwater entering through Gibraltar and the negative budget. The exit of salty Mediterranean water has the same importance in this balance. Beside this, the exit of Mediterranean water is also driven by the deficit of freshwater and heat.

Lines 23 and 24 is the first time you mention Intermediate Waters (IW). This term is used throughout all the manuscript. Obviously you refer to IW originated in the Levantine Basin, basically Levantine Intermediate Water and Cretan Intermediate Water. With this redaction, the reader could think that these are the only intermediate water masses in the Mediterranean Sea. There is also an intermediate water originated in the Western Mediterranean. Somehow you have to clarify this in this manuscript.

Dataset and methods.

Line 80. You mention several GSAs. It would be interesting to know in which GSA is the Sicily Channel.

Hydrological adquisition.

The value I would like to know is the accuracy in ºC and in salinity units. When I see a temperature, I want to know on which decimal place I can trust and which one is not accurate. The resolution, in ºC/bit gives no information to me.

Analythical methods.

According to Line 124, I understand that nitrites are also measured. Why this dataset only provides the information concerning nitrates. Why not providing also nitrites?

Quality check…

Line 188. Once again IW, without indicating its Levantine origin.

Line 190. Elimination of outliers. Please, specify how outliers are defined. >2.5σ, or >3σ, or whatever… (σ is standard deviation).

Lines 191 to 194. When I read these lines I do not understand how you have calculated the coefficients of variation. Then I have understood it reading the rest of the manuscript and looking at table II. But it should be clarified here. If μ is the mean value and σ the standard deviation, C=σ/μ. These mean values and standard deviations are calculated for each depth level (0, 25, 50, 75, 100, 150, 200, 300, etc.) using the data of all the oceanographic stations and all the campaigns? Or they are calculated for each campaign at each depth level using the data of all the stations? Looking at table II I understand that you calculate the mean values for all the stations and for all the depth levels within a certain depth range for the upper layer, then for a certain depth range for the intermediate layer, and the same for the deep layer. Is this right?

Figure 2. In the legend it is stated that b) is phosphates, but the x-axis says silicates. Most importantly. I cannot see the axis without a loupe. Please use larger letters and numbers.

Lines 229-230. Nutrients are regenerated in the mesopelagic layer by bacteria and animals (due to respiration). I am not a specialist, but I would only talk about bacteria. As you are using nitrate, I think that nitrification is carried out by bacteria. Animals can excrete ammonium, that can be used by some phytoplanktonic groups, but if I think about nitrate, the bacteria are the organisms responsible for oxidation of ammonium to nitrite first, and then to nitrate. As I said, I am not sure, but saying that animals regenerate nutrients sounds strange to me.

Line 251. SS. I suppose that you mean SC for Sicily Channel. SS has not been defined in the manuscript.