

REVIEWER 1

We thank the reviewer for this useful comment, which helped us to improve the manuscript.

Q1: It is undoubtedly a unique and useful data set to understand the complex hydrodynamics at the area and I would like to read a few more sentences on the advantages of the long-term high resolution monitoring approach as adopted by CIESM and other networks today. In addition, how other projects or activities can benefit from this data set.

A1: We have added a sentence to address this about the advantage of long-term high-resolution monitoring approach and its benefit that this activity can produce to other projects. (Lines 295-299 & 325-331)

Q2: Although it is mentioned that the two moorings have joined now the EMSO-ERIC infrastructure, I would suggest authors to provide some more information (such as links or references) showing that these data are integrated in EU data systems. This would enhance their FAIRness because through these systems the data are re-usable by many users and applications. Maybe such links are already included in the references but I could not find them.

A2: The two sites are part of EMSO-ERIC from 10/2021 but the website of EMSO-ERIC is not yet updated with the BB and FF site information. The text in the manuscript has been changed with more precise information about this. (Lines 65-68)

Q3: The second section describes the configuration of the observatory and mentions that every 6 months there is a recovery of the instruments for maintenance. I would suggest authors add here few sentences explaining what maintenance includes because not all readers are familiar with field collection practices. For example, does maintenance includes sensors calibration and biases fixing for both CTD and ADCP? For which parameters? Stressing the importance of such maintenance activities would show more clearly that the long-term monitoring data are of high quality and accuracy and this is very important when someone is trying to detect variabilities in long-time scales.

A3: The section has been expanded with more detailed information about maintenance, calibration and other instrument procedure. (Lines 103-114); It is also added the table 2 with the date of calibration of each CTD probe. In this part we have mentioned two cruise reports added in the reference list.

Q4: At the CTD probe description (line 91) it says: "accuracy of $\pm 0.1\%$ of full-scale range". I would like to read here what does it mean and why this is important for the T,S data accuracy. In the next sentence, isn't the phrase "The available resolution for conductivity is ± 0.0005 S/m, ± 0.005 °C for temperature" a repetition of the previous sentence?

A4: The original sentence was confused and in the revised version we wrote a new one about the description of sensors accuracy. (Lines 94-98)

Q5: Section 2.2 (metadata description), I could not find any metadata report on Dataset Information (DI) and Variables in Dataset (VD). Is by DI and VD is meant the attributes inside the NetCDF files? If so, please clarify and explain in the paper accordingly or better use terms like attributes instead of metadata report.

A5: There isn't any metadata report but only the attributes inside the NetCDF files. The metadata description is modified in the revised version (lines 131-136).

Q6: At the same section 2.2 for metadata, it is not only the DOI that make data FAIR. The scope of the journal is to highlight and emphasize the quality, usability, and accessibility of the datasets. Therefore, it would be useful for the readers if authors could expand more the components that make this data set FAIR

for example F:DOI, metadata; A: zenodo, other data portal or tools?; I: open format like NetCDF and std vocabs; R: open and well described data

A6: In the revised version we have expanded the FAIR concept related to our dataset (lines 151-157)

Q7: At the end of section for data, metadata it is mentioned that standardized vocabularies are used. Could the authors include which vocabs they use ?

A7: In the metadata in the global attributes reported the source of the keyword's vocabulary (SeaDataNet parameter discovery vocabulary) and also conventions used (OceanSITES v1.4, SeaDataNet_1.0, COARDS, CF-1.6). In the revised version the description is implemented with this information. (lines 154-157)

Q8 The Data quality check section should be changes to 2.3.

A8: The data quality section number is changed to 2.3

Q9: In the above section, please mention what tools are used for the quality control. Are these "in-house" made, commercial or other tools? Are these tools open and shareable? This info could also improve the FAIRness of the dataset

A9: we have better detailed the quality control used with also example for help the understanding of QC code (lines 171 and 176-185 and 197-198).

Q10: Concerning the quality checks, is there any comparison with existing data or climatologies at the area? Do you plan to include such checks in the future releases of time series? Such comparison are basic components of a QC which helps also to find errors at the data due to instrumental biases. It is a key activity to evaluate the quality of the data and I would suggest authors to include such comparisons in future releases.

A10: Yes, in future releases we plan to include comparison with other existing data and climatology, we also added this in the revised version. (line 328)

Q11: Line 142: Add here the Table 2 reference. There is no reference for Table 2 in the document. Also add a reference for (SeaDataNet, 2010), for example <https://www.seadatanet.org/Standards/Data-Quality-Control>.

A11: In the caption of Table 3 (ex Table 2) we added the link to the L20 Seadatanet qualifier flag table and we have added the suggested reference. Between lines 177 - 180 the description is expanded.

Q12: Line 156: By checking the data I understand that the bad data (flag=4) are removed from the published at data set at zenodo. I would suggest to keep these values in the published data set so as the QC can be repeated in future (perhaps with other thresholds). In this way you ensure the re-reproducibility of your data and of your scientific results making thus your data more FAIR

A12: After QC applied by PG80 criterion the value that exceed the threshold are changed to NaN and the flag number in column 11 is 5 as described in the table 3. All data are maintained in the dataset and the original data are reported in the column 12-13-14 with the assigned flag 0 because No quality control procedure has been applied. In the revised version a clearer explanation is provided (Lines 180-182)

Q13: At the start of the Data availability section, why do you use 2 different links ? They end at the same web page

A13: One is the website page of the dataset and the other one is the registered DOI. The sentence in the revised version is changed with only one address (Lines 333-334).

Q14: The text fonts at the left axis of mooring sketch at Figure 1 is not very distinctive. If it is feasible to increase the fonts, it would be useful. Comments on data files

A14: The figure is edited as suggested

Q15: I could not find filtered variables in the CTD data NetCDF files, only raw data (cond, temp, psal). The included psal_qc, temp_qc are the quality flags and not the filtered variables. The data files should be corrected and reloaded at zenodo.

A15: In the original manuscript the description is wrong, the column with header -qc for CTD, correspond only to the flag code of each variable. The description is changed in the revised version. (Lines 145-147)

Q16: If only good data are kept (flag=1), why the salinity flags at the CTD files as well as the temperature flags at file BB_600_CTD.nc are 1 and 9 ? TEXT editing and improvement

A16: not only good data are kept but all data are reported except when the probe is outside the water and not at the correct mooring depth. The flag 9 is assigned when data is missing. We have specified this also in the revised version (Lines 197-198)

Q17: Line 18: I think the term “dynamics” is more correct (e.g. “Adriatic deep-water dynamics” instead of “Adriatic deep-water dynamic”).

Q-18-40 text editing and reference editing

A17-40 all text corrections has been edited and also the references

Q41: Line 145, Table 2: the list is not complete. Authors could modify the caption to indicate that these are the relevant codes to this work. Authors could also add a link also of the SeaDataNet L22 QC flag scheme, as L22 has been updated since 2010 the SeaDataNet guidelines were published.

A41: I have added the link of L20 and I have modified the citation on the text. The sentence in the revised version has been modified. (Lines 176-182)

REVIEWER 2

We thank the reviewer for these useful comments, which helped us to improve the manuscript. The revised version of the manuscript will contain the following answers to your comments and suggestions.

Q1: The authors describe the configuration of the observatory and 6-months recovery activities. It could be also useful a brief description of the maintenance methodology that is, undoubtedly, more that change batteries and cleaning the instrumentation. I am quite sure that along 8 years, some sensors and instruments have been calibrated and/or replaced. Some explanation about the calibration processes could be very useful in order to reuse the timeseries, especially when they try to detect decadal to interdecadal signals, as they could do in a near future

A1: The description about the recovery activities and sensor calibration and replacing has been expanded in the revised version. We have added also in table 1 the S/N of CTD sensors used (lines 103-114)

Q2: Regarding to the previous point, the instrument description, lines 81-93 (accuracy, etc) could be easily readable if it is displayed in a table. The authors should evaluate the convenience or not of this suggestion

A2: The original description in the revised version has been changed to a new one more clear (Line 94-98)

Q3: In relation to the dataset at zenodo repository, I find and download the 4 netcdf files, but I am not able to find the reports: “dataset information (DI)” neither “variables in dataset (VD)” described in the paper. It could be my fault, but please check it and add them in case. Mentioned FAIR data principles include more

than giving DOIs and making them accessible (downloadable), but provide the relating information to facilitate the reusing of them. Then, these 2 files are important. I also suppose they include descriptions of the vocabularies standards descriptions which are mentioned in the paper.

A3: There isn't any metadata report but only attributes in the netcdf files, there is a misunderstanding due to a not good writing in the original manuscript. The description of the metadata is modified in the revised version (Lines 126-131 and within metadata in the global attributes are specified the source of the keywords_vocabulary (SeaDataNet parameter discovery vocabulary) and also conventions used (OceanSITES v1.4, SeaDataNet_1.0, COARDS, CF-1.6). (Lines 154-156)

Text editing and reference editing issues:

A1-7: All text corrections suggested have been edited and the references are corrected and updated