Reviewer #1

First of all, we would like to sincerely thank both reviewers for their very thorough and, above all, constructive reviews. We have followed most of their suggestions whenever possible and honestly believe that the revised version has been significantly improved.

The main changes include the removal of some parts of Section 4, as they were somewhat repetitive. We have also moved Figure 5 to the Supplementary Material and revised several figures to improve their clarity. In addition, we have expanded Sections 5 and, in particular, Section 6, where we review the current organizations devoted to the coordination and promotion of observing systems and discuss their strengths, weaknesses, and future perspectives.

We have made a brief bibliographic survey of the MonGOOS impact and included a glossary in supplementary material.

We have carefully reviewed all references and incorporated additional ones suggested by the reviewers.

One of the most interesting points raised by the reviewers was the possibility of carrying out Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). Although this is beyond the scope of the present work and would deserve a dedicated study, we fully agree that it is an important line of research. In our opinion, this is one of the key activities that MonGOOS and its Steering Committee should promote in the near future. We have acknowledged this point in the revised manuscript.

In addition to these general comments, please find below our responses to the main and detailed comments. Our replies are highlighted in bold.

The paper 'The Mediterranean observation systems: MonGOOS analysis of present capabilities, weaknesses and perspectives' by Vargas-Yanez et al. presents a complete and detailed inventory of the ocean observation capabilities in the Mediterranean. The analysis was conducted within the framework of MonGOOS, an international organization dedicated to the coordination of Mediterranean ocean observing systems. The paper provides a detailed and accurate snapshot of the Mediterranean observing systems, highlighting the strengths and weaknesses of the current system.

I really appreciated the paper, as such inventories are difficult to realize due to the fragmentation of observation efforts in Europe. The method is robust, well-explained, and helps non-expert users find their way in the intricate and somewhat incomprehensible world of ocean observation. Additionally, they provide a

complete explanation of the governance and organizational framework, which, even for an expert, can sometimes be hard to appreciate.

However, I expected the conclusions to go a little further. Some of the suggestions, derived from the weaknesses identified by the analysis, are certainly true, although somewhat rather generic (e.g., “increase observations in the eastern part of the basin, augment funding and personnel involved, etc.”). Such messages are essential, and there is no doubt that they must be addressed. However, from a consortium of more than 30 scientists, I expected a little more.

We fully agree with the reviewer. We have added new comments and ideas both in section 5: Organizations involved in the governance of the observing systems and in section 6: Discussion: Strengths, weakness and future perspectives. You can follow these changes in the changes –track version of the new manuscript.

We have also added some new comments on future perspectives and the need for better coordination or the suggestion of making OSEs and OSSEs in the future.

I sketch below some points that could be addressed by the authors. They are not mandatory for final publication, but I strongly suggest, at least, treating them partially, as the final relevance of the paper will, in my opinion, be strongly augmented.

I also suggest substantially reducing the initial part of the paper, where definitions and descriptions of the platforms are provided. Although I found it very interesting and well done, this section is not essential for the rest of the paper and could be moved to supplementary material, retaining only the main messages (and Figure 1) in the main text.

We also agree with the reviewer that some parts of the manuscript are too lengthy. This concern was also raised by Reviewer #2.

To address this issue, we have made the following changes. We have retained Section 2, which provides a description and classification of the different observing systems. As stated in the manuscript, one of the main objectives of this work is to make it useful to the broadest possible audience. In many cases, researchers, stakeholders, and policymakers may not be familiar with some observing platforms and instruments that are considered commonplace by specialists in the field.

However, we acknowledge that Section 4 contained some repetition. We have therefore revised and shortened this section by removing explanations that were not strictly necessary and by moving some content to Section 6.

In relation to this point, reviewer #2 also suggested removing Figure 5 and including it as supplementary material. We have followed this

recommendation and believe that the manuscript has improved as a result and is now less repetitive, despite the large amount of information and the diversity of sources that needed to be synthesized.

Here are some suggestions to improve manuscript relevance:

1. It would be really informative to have a bibliographic study of the MonGOOS system as a whole, as well as for each sub-system. An interannual evolution of some bibliographic parameters would also be highly informative. The idea here is not to rank the "best" systems, but to inform non-expert users that MonGOOS systems are real scientific tools, essential not only for data collection but also for advancing ocean knowledge.

   We agree with the r eviewer. In the first paragraph of section "5. Organizations involved in the governance of observing systems" we have included a brief description of the history and evolution of MonGOOS from MedGOOS and MOON.

   We also agree that it is interesting to show the impact of MonGOOS on the oceanographic community by means of some bibliometric indicators. A detailed bibliometric study is out of the scope of this work as it would be quite long. However, we have followed the reviewer's suggestion and included at the beginning of section 5 a brief bibliometric research based on google scholar.

2. I understand that most observing systems are developed at the national (or sometimes laboratory) level, and that basin-scale coordination is only possible a posteriori rather than a priori. Nonetheless, I was surprised that an objective analysis of the systems was not included. OSSE and OSE methods provide scientific and effective tools to assess the relevance and usefulness of observing systems. Other approaches (e.g., bioregionalization, correlation analysis, temporal and spatial scale analysis, etc.) could also be used to evaluate the performance (and, more importantly, the weaknesses) of a system and to provide guidance for future improvements. Again, the goal here is not to prioritize systems, but to offer insights for further enhancements.

   We honestly believe that this is a very interesting point, and we fully agree with the reviewer. If each country designs its own observing system according to its own criteria, there is a real risk that the combination of all these systems may not fully meet the requirements of a Mediterranean-wide observing system. The same argument could be extended to any other regional observing system worldwide. OSEs, OSSEs, and bio-regionalization exercises could be extremely valuable for identifying gaps and weaknesses in current observing capabilities.

However, we believe that such analyses would constitute the basis for a separate and highly interesting study in their own right. For this reason, in Section 6, which discusses strengths, weaknesses, and future perspectives, we have added a new paragraph highlighting that the coordination efforts carried out by organizations such as MonGOOS, EuroGOOS, and EOOS should also include this type of exercise. The results could then be used to formulate recommendations for national observing systems, thereby contributing to the development of a more coherent and effective Mediterranean observing network.

3. Similarly, apart from generic statements (e.g., "increase biogeochemical observations"), no specific indications are provided regarding the evolution of the system in terms of parameters. Cost is clearly the most significant limiting factor, preventing the expansion of parameters in observing systems. However, even if no additional resources are allocated in the coming years, I believe it is important that such analyses be performed in papers like this one.

   We agree. Furthermore, there are several approaches that could help improve current observing capabilities, such as the OSEs and OSSEs mentioned above. In addition to continuing the present effort by identifying observing platforms that may not yet have been documented (as already stated in the manuscript, this is intended to be a living work), future studies could also assess whether all the observing platforms described here effectively contribute data to EMODnet. These additional research directions have now been included in Section 6.

Again, these are only suggestions, as I consider the paper ready for publication with minor revisions:

Line 395: As mentioned earlier, I suggest reducing the chapter “Current observation capabilities” and moving most of the text to the appendix or supplementary material.

We have tried to shorten this and we have moved Figure 5 to supplementary material.

Line 275: For the sake of completeness, also cite surface autonomous devices.

Ok! We have included these devices and also a reference to allow the reader to obtain more information.

Figure 2: I have some issues with the legend: where are the blue dots? The colors of the bars are not clearly explained.

The reviewer is right. The dots inside the bars could not be seen. We have changed the colors to make this clearer and also trying to make this better for color-blinded people. Now the bars are black, white and grey. The figure and the legend have been modified accordingly. The main text has also been corrected.

General comment on figures and tables: I am not convinced that systems not yet deployed (even if funded) should be included in the figures and tables. The future is always uncertain, especially for ocean operations, and secured funding does not guarantee that observing systems will ultimately be deployed. Adding planned systems/points to the figures could be misleading for non-expert readers. I strongly suggest removing them.

We are sorry, but in this case we do not fully agree with the reviewer. As can be seen from the manuscript, this work is the result of a collective effort involving more than 70 researchers from over 50 institutions. Naturally, different contributors had different views and criteria, and reaching a consensus was not always straightforward.

In this particular case, some institutions requested that their forthcoming deployments be included because they were already fully planned and confirmed. We believe this justifies their inclusion in the inventory. Future deployments were only included when the responsible institutions confirmed with a high degree of certainty that they would take place.

Table 5, Second row: The entry should be “Ajaccio” (not “AJACCIOI”). Unless the authors opt to use Corsican, in which case the correct form is “Aiacciu”.

Ok! This has been corrected.

Table 6: I strongly suggest indicating in the table the maximum depth of the stations available for each cruise. Sometimes, even if the bottom depth is great, data are only obtained at the surface or at intermediate depths. For non-expert readers seeking information, this detail could be useful in identifying the most suitable systems for their scientific purposes. Another useful indicator could be the number of stations exceeding 1000 meters depth.

The reviewer is correct. Information regarding whether the stations are coastal or deep-water is important. However, this is all the information that we have been able to obtain so far. As already acknowledged in the manuscript and in our response to this review, this should be considered an ongoing process, and the MonGOOS Observations Working Group should continue updating and completing the available information.

Future templates circulated within the MonGOOS community will include a dedicated field for this information.

In addition, we have revised Figure 10 to include the 200 m and 1000 m isobaths, allowing readers to better assess the shallow or deep-water character of the stations. We hope that this provides the information requested by the reviewer until further updates become available.

Table 7, Third row: "CNRS/IFREMER" is repeated three times.

Ups! You are right. It has been corrected!

Line 821: It would be really informative for non-expert readers to explicitly explain the difference between EOOS and EuroGOOS.

We had explained in the previous version what EOOS is: "EOOS is defined as "an alliance of voluntary partnerships including public and private sector" (https://www.eoos-ocean.eu) and has no legal status. The EOOS is considered as the set of platforms and means for the observation of European waters. This set, once coordinated, constitutes itself an observation system, being a component of GOOS and GEOSS (Global Earth Observation System of Systems). Therefore, it includes those platforms from MonGOOS located in the European waters of the Mediterranean Sea, but not those in the southern riparian countries. As in the case of MonGOOS, it does not have a budget and is funded through the in-kind contributions of its members. EOOS is structured by a steering group, and advisory and operations committees, aimed at fostering coordination and development of existing capabilities." After this paragraph we include another one explaining what EuroGOOS is. Certainly, both organizations overlap and we already explain in the first version of the manuscript that they share objectives. One of the differences is the legal status of EuroGOOS as a non-profit organization. Besides this, we have emphasized this overlapping and the need for coordination in the new section 6.

Line 880: Maybe I missed something (it is true that the paper is full of acronyms, a glossary would be really useful), but I am surprised that the authors, in their comprehensive overview of the puzzling governance framework, did not cite specific national coordination initiatives such as Fr-OOS (froos.fr) or It-IOOS (it-ioos.eu). It would also be important to somehow mention the GOOS reform project (goosocean.org/news/call-for-proposals-global-ocean-observing-system-reform-consultancy), which will likely impact the governance of all sub-regional and regional systems, such as MonGOOS.

I agree. We have mentioned these initiatives in the new section 6.

Reviewer #2

First of all, we would like to sincerely thank both reviewers for their very thorough and, above all, constructive reviews. We have followed most of their suggestions whenever possible and honestly believe that the revised version has been significantly improved.

The main changes include the removal of some parts of Section 4, as they were somewhat repetitive. We have also moved Figure 5 to the Supplementary Material and revised several figures to improve their clarity. In addition, we have expanded Sections 5 and, in particular, Section 6, where we review the current organizations devoted to the coordination and promotion of observing systems and discuss their strengths, weaknesses, and future perspectives.

We have made a brief bibliographic survey of the MonGOOS impact and included a glossary in supplementary material.

We have carefully reviewed all references and incorporated additional ones suggested by the reviewers.

One of the most interesting points raised by the reviewers was the possibility of carrying out Observing System Experiments (OSEs) and Observing System Simulation Experiments (OSSEs). Although this is beyond the scope of the present work and would deserve a dedicated study, we fully agree that it is an important line of research. In our opinion, this is one of the key activities that MonGOOS and its Steering Committee should promote in the near future. We have acknowledged this point in the revised manuscript.

In addition to these general comments, please find below our responses to the main and detailed comments. Our replies are highlighted in bold.

General comments.

The manuscript presents MonGOOS, the regional alliance centered on ocean observing systems in the Mediterranean Sea. The study is grounded in a census of these systems, conducted in consultation with regional observation actors across the basin. The consultation methodology is clearly framed, which strengthens the openness and thoroughness of the inventory. While the manuscript section ordering is classical, it is clear and logical, and effectively supports the paper's central aim. I particularly appreciated the contextualization effort given to (i) describe observing systems, (ii) MonGOOS's role within the broader system of global and regional alliances, and (iii) the authors' justification of the chosen terminology. Overall I think the paper fits its central purpose and will be useful for the community and recommends acceptance with minor revisions based on the two subsequent points.

My principal criticism concerns the stated goal of “analysing the current state of the Mediterranean observation capabilities" to "evaluating strengths and weaknesses to outline a path for future development," (l175-180) which I find presently under-done, given its prominence as a primary aim of the paper. A complete assessment of strength and weaknesses of the observing system would compare modes of ocean variability against

existing observational capabilities, in terms of both resolution and spatio-temporal coverage. I do acknowledge that such an analysis is not feasible for each and every EOV at the scale of the Mediterranean basin (especially at the paper level). I find that this point could be tuned down or discussed as a perspective. As an alternative approach, I suggest the authors connect their manuscript more explicitly to the official EOV framework (https://doi.org/10.3389/fmars.2026.1737002). Stating for instance which EOVs fall within MonGOOS's scope ; which EOVs should be better observed for societal needs ; and quantifying how often each EOV is addressed by observing systems. These simple additions would allow to quantitatively pinpoint underrepresented variables or categories of variables (physical, biogeochemical, and ecology & ecosystem) and would grant a firmer basis to the discussion section.

This is a very interesting point, and we have partially followed this suggestion. First, we have linked our compilation of observation platforms for EOVs to the work of Martín Míguez et al. (2026), in which a detailed discussion and definition of EOVs is provided.

We also agree that it would be very valuable to perform Observing System Experiments (OSEs) or Observing System Simulation Experiments (OSSEs), as also suggested by Reviewer #1. Such analyses would make it possible to assess the actual capabilities of current observing systems and programs, identify existing gaps, and determine priorities for future improvements.

However, the main objective of the present work was to compile the existing observing capabilities, including programmes, platforms, devices, and infrastructures, and to broaden the community of researchers and institutions involved in MonGOOS so that this inventory can be easily updated in the future.

For the time being, the assessment of the strengths and weaknesses of the current Mediterranean observing system is based solely on the review of the information compiled in this work. We believe that the type of analysis proposed by the reviewer is highly relevant and would provide valuable insights; however, it would require a dedicated study specifically designed for that purpose.

Nevertheless, we have accepted this suggestion and have added a statement in Section 6 indicating that this should be one of the priority activities of the MonGOOS Working Groups in the future.

Second, I think the manuscript's form requires tightening. Figures could be improved for aesthetic clarity and, in some cases, modified to better serve their intended purposes. These issues are flagged in the specific comments below. While the manuscript's ideas flow smoothly, I found the writing quality to be uneven. Many sentences need rewriting (e.g., in the section on infrastructures) for typos, grammatical errors, repetition, and inconsistencies. Sections are also not sequential; section 4.6 appears twice. Finally, there are inconsistencies in the references that reference-management software (e.g., Zotero) should easily resolve (e.g., "Milglietta" instead of "Miglietta"; "Liubarsteva" vs. "Liuvaresteva"). These issues are itemized in the technical corrections below.

Thanks very much for this comment. We agree.

We have shortened some parts of section 4 and we have moved Figure 5 to supplementary material. We have made an exhaustive grammar and style review and also reviewed all the references. We have changed some figures in order to make them clearer and we have included bathymetry in Figure 10 for including information about the coastal or deep character of stations.

By the way, we have reviewed and found that it is Miglietta. We have corrected for Liubartseva.

Specific comments

line 141: the recent publication of the GOOS on EOV could be referred to: GOOS Essential Ocean Variables: the backbone of a sustained and evolving global ocean observing system (10.3389/fmars.2026.1737002)

Thanks very much for this recommendation. We have included this reference, which we have found very interesting and appropriate for our work. We have also used some references found in that work.

line 142: What are non-essential variables ? I guess the authors mean variables recognizable as non essential by the GOOS which is not much when considering for each EOV, all supporting variables, sub variables and derived products associated (see paper above).

The reviewer is right. What is the meaning of non-essential? We state now in the new version that we simply mean those variables not included in the current list proposed by GOOS and collected in Martín Mínguez et al., 2026 (for instance its Figure 2).

line 304-311: HFR are present on OceanOPS but not listed here.

The reviewer is right. We have corrected this omission.

line 318-334: The authors define the terms they will use to refer to each specific observing system. This paragraph is dense and difficult to follow, especially since it is based on a semantic analysis. To simplify reading, I suggest adding the item names in bold maybe at the beginning of each sentence and then to define each of them.

line 344: OBSWG appears here for the first time apart from within the abstract and could be redefined.

The reviewer is right. We have corrected and included the definition.

Figure 2:. On the preprint version, I could not identify the blue bars cited in the text, they appeared mostly white with some black or blue dots with blue dots being referred to within the figure label. Colors could be changed for simpler filled patterns.

The figure caption could be rephrased for clarity especially: Grey bars show the number of institutions directly reached out for each country / that sent some kind of answer . In panel A, I am not certain to read the figure well: From my understanding the gray bars show the initial number of forms sent per country, the white bars indicate the number of replies obtained and the red bar, the total number of replies combining direct replies from institutions and indirect information obtained by the authors. If my interpretation is correct, a flat (or unstacked) bar

diagram might be more suited than a stacked one. It would better highlight the number of answers per category and respectively to each country and better frame the consortium initiative to reduce network-driven biases. I am wondering if panel B is necessary here as countries are already recalled in panel A.

The reviewer is right and reviewer #1 made the same criticism. We have changed Figure 2 and we use the colors black, white and grey for the bars. They are now seen clearly.

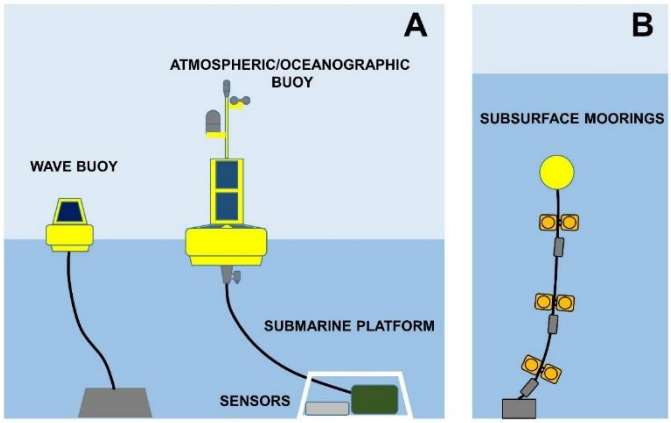
On the other hand, we believe that this figure is now clear enough.

line 490-517: This part (and figure 5) could be added in the supplementary material or in section 2 so to smoothen the manuscript flow.

We have followed the reviewer's suggestion and Figure 5 has been moved to supplementary material.

Figure 6, naming of buoy type seems inconsistent within figure 5, the text, the legend of figure 6 and its caption: e..g, submarine platforms/sea floor.

We agree with the reviewer in that there are many names for these types of devices. This is the reason why we have adopted a new one: "surface or subsurface moored buoys and submarine platforms". We think that this is consistent with the "old" Figure 5 that is now Figure S1 in supplementary material. Wave buoys, atmospheric/oceanographic buoys in Figure S1 correspond to surface moored buoys. Submarine platforms in Figure S1 are within the name of this category and subsurface moorings in Figure S1B correspond clearly to subsurface moored buoys in the name of the category.



line 565: pH is not measured at all at the basin scale, should it be monitored in the Mediterranean Sea? Is it a critical drawback of the observing system ? This is the type of element that would be interesting to be pushed further in the discussion to better highlight forces and drawbacks of the current observing system.

The reviewer is absolutely right. We have extended on this point in the discussion section as suggested by the reviewer.

Figure 7: I think that simpler colors and filled patterns could be chosen by the authors so as to have clearer figures (such as plain colors). I think that panel A and B y-label, shows the number of active floats per year rather than the number of deployment. I wonder why the total number of floats (black line) is below the Deep and Coastal floats number. Here again, I think

that an unstacked bar chart would ensure better interpretation and comparison of numbers of active floats per year in respect to their categories. Stacked bars chart is however fitting panel B.

The reviewer is right. We have re-made this figure in order to make the color-code simpler. We have tried to keep it accessible for color-blinded persons.

The total number is below the sum of all types (then below than deep and coastal) because it is frequent that the same float belongs to two categories.

Figure 8: I find panel A not so useful. Rather than a figure of all float positions (taken at what time? deployment, midlife, end of life?), the authors could represent a heatmap of profile density which will better highlight sampling (in?)homogeneity. The "present date" could be recalled in panel B

We partially agree with the reviewer. Panel A simply gives a historical perspective about the number and types of Argo floats that have been deployed along history, but this information is already provided in Figure 7A. However, it does not consume much space and besides this, it provides geographical information about the deployment sites of the floats. In this way, this section is not so poor in references and, furthermore, we emphasize the importance and some of the applications of these devices.

Section 4.5, The surface drifter section is relatively poor in references:

The reviewer is right. We have included some more references, not just to increase the number of references, but also to highlight the importance of these devices.

line 600 EMODnet Physics lists more than 600 drifters in the Mediterranean Sea. Is this historically cumulated drifter number or just an active drifter number ?

The reviewer is right. They are the number of drifters used historically through the years. It has been made clear in the new version.

Figure 9: Similarly to the Historical Argo array, I find the representation of surface drifters positions since 2001 not so useful. Maybe a historical bar chart of the number of drifters per year might better show the current state of the observing system? Trajectories of currently operational drifters could also be added to better frame the Lagrangian aspect of these devices.

As in the case of Argo floats, we believe that this figure helps the reader to have an idea about the sampling effort carried out throughout the years.

Line 632: CAL and VAL are relatively different things for satellite remote sensing. While I can easily imagine validation exercises, I do not know any calibration exercise done at this level. Could the authors give a reference ? (One for validation and one for calibration of satellite sensor with data sampled with ferry boxes).

The reviewer is right. These statements should be accompanied by the corresponding references. We have included Petersen (2014) which proposes the use of Ferry Box for validation and Petersen et al. (2003) where the use for calibration is proposed and Petersen et al. (2008) where Ferry Box data are used to calibrate algorithms for chlorophyll in coastal waters.

Line 659 to 667 The authors could specify what criteria distinguishes periodic, quasi-period and occasional (every year, twice a year, once every decade ?). This section discusses periodic and quasi periodic programs but this concept is neither shown in Table 6 , in figure 11 or later-on in the text. As such I suggest removing this sentence fully.

The reviewer is absolutely right. This must be defined, especially when this work is intended to explain the different types of sampling strategies and monitoring programs. We have included this paragraph: "Here, a periodic cruise is defined as a cruise repeated at regular time intervals, typically on a weekly, fortnightly, monthly, quarterly, or annual basis, notwithstanding occasional gaps due to technical issues or adverse weather conditions. In contrast, a quasi-periodic or occasional cruise is repeated whenever circumstances permit, depending on the availability of funding and research vessels. Such cruises are generally conducted at larger spatial scales and may be repeated at irregular intervals, with gaps of one, several, or even more years between successive surveys."

Figure 9 time series stations are hardly distinguishable with repeated cruises when both are spatially overlapping as in the Golf du Lion. On this figure I would find it particularly relevant to connect cruises and time series stations names with their spatial imprint / location. A code could be used (e.g, 1,2,3,4, …) matching a text box in the figure, with rows number in table 6.

We have tried several forms of nomenclatures and labels in this figure, but certainly it is very difficult because there are many different stations. This is our best. But the important thing is that all the information is clear in the Excel files in supplementary material.

Figure 11 panel A and C, grey triangles above Crete do not relate to any country in the legend. Maybe just recall that they are finished and that these are the Greek systems.

Ok! We have followed this suggestion and included in the Figure legend the explanation for the two grey triangles which, in fact, were from the former Poseidon Greek observation system, which is not active because of the lack of funds.

Line 958: From this paragraph, I am wondering if the coverage should be even ? For instance, are there regions that should be targeted in priority for HFR stations? Are there regions that would not need such an instrument ? These questions are just examples of content that could be explored further. Observing System Simulation Experiments (OSSE) could answer these questions (how to prioritize future development of the observing system?) but they are never mentioned within the perspectives.

The reviewer is right. We have included a paragraph in the section discussion, weaknesses and future perspective, explaining the importance of carrying out this kind of exercises in the future. We agree with the reviewer about the importance of these analyses for actually evaluating the capabilities of the Mediterranean observing systems (or those of any other region). However, we have not done it here because we believe that this deserves its own work.

Line 960: even and homogeneous coverage of drifting platforms within the basin was not shown (see comment above on Argo Figure).

From line 980: to what does BGC variables refer to ? I have the impression that this generic term could be divided into Biogeochemical variables and Ecology and Ecosystem variables if the authors follow EOVs categories from the GOOS.

In section 2 it is described what means BGC in the context of Argo floats: "(ii) BioGeoChemical Argo (BGC-Argo) floats are equipped with sensors for dissolved oxygen, pH, nitrate, chlorophyll-a, suspended particles (via optical backscattering), and irradiance".

Technical correction

● Across the document: The authors need to choose a convention in the use of determinants before acronyms: "GOOS" or "the GOOS" / "EOOS" or "the EOOS".

Ok! Corrected. We have written it without the article.

● line 159: I suggest rephrasing "[...] and adaptation to the effects that climate change may have on coastal populations and beyond [...]" to "and mitigate climate change effects on coastal populations and beyond".

Ok! We have followed this suggestion and rephrased according to the reviewer's proposal.

● The following sentences could be simplified/rephrased for clarity: "In other cases, there are underwater stations located on the seabed (usually in shallow waters) that measure the above mentioned variables at the depth at which the underwater station is located." (l. 242). The sentence end is slightly awkward.

"Unlike stations anchored to the sea floor, these devices drift freely with the current and therefore, they have a Lagrangian character, in contrast to the Eulerian nature of fixed platforms" (l. 253) Could be simplified.

We have maintained the present phrasing.

"Argo floats periodically descend to a predetermined depth and then, during the ascent, they record pressure, temperature,conductivity, and sometimes biochemical variables, depending on the float type: (i) Core-Argo floats provide temperature and salinity (T/S) profiles down to 2,000 dbar. (ii) BioGeoChemical Argo (BGC-Argo) floats are equipped with sensors for dissolved oxygen, pH, nitrate, chlorophyll-a, suspended particles (via optical backscattering), and irradiance. (iii) Deep-Argo floats are capable of sampling to depths of 4,000–6,000 dbar." (l. 255)

This is a long-sentence which could be separated into two: one for the cycling and one for the observed variables

In this case we have retained the present wording. We use a colon after "float type: " and then, there is a full stop after each type of Argo float: "Argo floats periodically descend to a predetermined depth and then, during the ascent, they record pressure, temperature, conductivity, and sometimes biochemical variables, depending on the float type: (i) Core-Argo floats provide temperature and salinity (T/S) profiles down to 2,000 dbar. (ii) BioGeoChemical Argo (BGC-Argo) floats are equipped with sensors for dissolved oxygen, pH, nitrate, chlorophyll-a, suspended particles (via optical backscattering), and irradiance. (iii) Deep-Argo floats are capable of sampling to depths of 4,000–6,000 dbar".

“For instance, underwater gliders are self-propelled units that operate without a propeller or traditional thruster, and move horizontally and vertically according to a predetermined mission plan.” (l. 273). Repetition

We are sorry, but we find the present wording clear.

“Manual observation methods include all measurements taken from oceanographic or commercial vessels that must be moved to the location where the measurement is performed (oceanographic station).” (l. 278)

“This tool was conceived to allow operators to contribute detailed metadata to a centralized inventory, which can then be used by data portals and aggregators to harmonize and update their own metadata records.” (l. 464)

“and one of the Core-Argo is a coastal one” (l. 563)

Line631: “Moreover,Chl-a data can be used for satellite validation/calibration, while it has been proven as a helpful tool in the study of water circulation, in particular when SST is assimilated into prognostic numerical circulation models to improve their accuracy” (Korres et al., 2014).

In this cases we have retained the present wording.

Line 732 : “the relative scarcity of them in the Eastern Mediterranean” to “their relative scarcity”

Ok! Corrected!

“Ocean Gliders form a mature observation network within GOOS, coordinated at the international level by the OceanGliders program from GOOS (https://www.oceangliders.org/).” (l 783) GOOS is repeated twice.

Ok! Corrected!

“Such missions were aimed at testing this instrumentation or the study of the water masses and ecosystem functioning in the frame of specific research projects (l. 793)”

Ok! We have rephrased it.

Paragraph from line 821 to 827 needs tightening and correction. e.g.: “the southern riparian country” this sentence ends on an adjective ; “ it has not a budget“ should be : “does not have a budget” ; …

Ups! Corrected!

Similarly the next paragraph on EuroGOOS which needs rewriting: … the same objectives as (instead of) aforementioned organization … ; Inconsistent use of verb form : to foster ; promote ; providing ; favoring ; as a non-profit organization ; in Brussels instead of at Brussels

Ok! Corrected!

● line 261: it seems that an adjective is missing: as become a (major, essential,important?) component of GOOS

Ok! We have added “a major component”.

● line 327: As it will be shown

Ok! Corrected!, but most of grammar and style correctors suggest: "as will be shown in the following sections" and we have followed this.

● Chapter 4.4: the term basin is repeated many times

Ok! We have looked for alternatives in the new version.

● Several times: "analyzed at the laboratory" or "analyzed in a laboratory", I also saw just "at the lab"

Ok, we have always used "analysed in the laboratory" (British English, although we are not sure about the journal's preference).

● Table 5, "AJACCIOI" is written instead of "AJACCIO"

Ok! Corrected!

● line 930: "because of the cut of funds" to "because of funding cuts"

Ok! Corrected!

● "Observation programm/platform/system" or "observing programm/platform/system" is inconsistently used over the manuscript

In this case we have made just one correction. We use the word program when we refer to a set of the same type of devices handled by one single country. For instance, IEO in Spain has a program devoted to monitoring its waters with a periodic cruise. When we consider different programs, for instance, the repeated cruises plus the tide gauges and the moorings of a certain country, they constitute the Observation system of that country. If we consider the coordination of different programs and national (or institutional) programs, then we also have an observation system. Anyway, we also use them as synonyms in order not to repeat many times the same word.

● The term "include" is heavily repeated in section 5.

The reviewer is right. We have used some alternatives in the new version.

● TAD number is 85 in the Abstract but 88 at line 458

The right one is 88, which has to coincide with the data contained in the Excel file in supplementary material. Thanks for the correction!