

Interactive comment on “Mediterranean Sea Hydrographic Atlas: towards optimal data analysis by including time-dependent statistical parameters” by Athanasia Iona et al.

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This ms is describing a very important step in developing of the comprehensive decadal regional climatology for the Mediterranean Sea - a very important region of the world ocean. This climatology provide an improved oceanographic foundation and reference for multi-disciplinary studies with its high-resolution quality-controlled temperature and salinity fields on standard depth levels from the sea surface to 5,500 m depth. The individual decadal fields are a significant upgrade from the previous version of the Mediterranean Sea climatology. This could be quite useful for assessing regional climate change over the long time period and can be utilized in other climate-related

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applications. Using DIVA tools for data processing is interesting approach and it is appears to be quite successful. I will be very much interested to see how this Atlas will be used in climate change research in that region of the world ocean.

I believe this ms can be published after applying several minor technical corrections listed below.

—My answers to the standard questions: 1. Are the data and methods presented new? Historical data processed using renewed method

2. Is there any potential of the data being useful in the future? Yes, absolutely

3. Are methods and materials described in sufficient detail? Yes

4. Are any references/citations to other data sets or articles missing or inappropriate? No

5. Is the article itself appropriate to support the publication of a data set? Yes

6. Is the data set accessible via the given identifier? Yes

7. Is the data set complete? Yes

8. Are error estimates and sources of errors given (and discussed in the article)? Yes

9. Are the accuracy, calibration, processing, etc. state of the art? Yes

10. Are common standards used for comparison? Yes

11. Is the data set significant – unique, useful, and complete? Yes

12. Are there any inconsistencies within these, implausible assertions or data, or noticeable problems which would suggest the data are erroneous (or worse). If possible, apply tests (e.g. statistics). Unusual formats or other circumstances which impede such tests in your discipline may raise suspicion. No

13. Is the data set itself of high quality? Yes

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14. Is the data set usable in its current format and size? Yes
15. Are the formal metadata appropriate? Yes
16. Is the length of the article appropriate? Yes, the ms is long, but it is appropriate.
17. Is the overall structure of the article well structured and clear? Yes
18. Is the language consistent and precise? Yes
19. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes
20. Are figures and tables correct and of high quality? Yes (see remarks about Figs and Table 1 below)
21. Is the data set publication, as submitted, of high quality? Yes
22. By reading the article and downloading the data set, would you be able to understand and (re-)use the data set in the future Yes, I've downloaded all data using links provided and was able to work with the Atlas.

——— Remarks:

1. Page 4, Line 25 in 1.1 Objectives chapter: word 'fields' is missing in ' Seasonal climatological gridded obtained by analyzing... ' sentence.
2. Page 4, Line 32 in 1.1 Objectives chapter: word 'obtained' is missing in ' Annual gridded fields by analyzing all... ' sentence.
3. Page 5. Part 2 Data, Line 21: correct INVG to INGV.
4. Page 6: Table 1 - remark 1: WOA13 listed as having 57 levels for all temporal resolutions. In WOA13 57 levels are only for monthly fields. Annual and seasonal fields made on 102 levels. - remark 2: WOA13 based on WOD13, which consist of data collected from following platforms: Ocean Station Data – OSD; High-resolution Conductivity-Temperature-Depth – CTD; Mechanical/Digital/Micro Bathythermograph

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– MBT; Expendable Bathythermograph – XBT; Surface – SUR; Autonomous Pinniped Bathythermograph – APB; Moored Buoy – MRB; Profiling Float – PFL; Drifting Buoy – DRB; Undulating Oceanographic Recorder – UOR; and Glider – GLD. - remark 3: WOA13 consist of several parameters, not only T & S: Temperature (°C) Salinity (unit-less) Density (kg/m³) beta version Conductivity (S/m) Dissolved Oxygen (ml/l) Percent Oxygen Saturation (%) Apparent Oxygen Utilization (ml/l) Silicate (μmol/l) Phosphate (μmol/l) Nitrate (μmol/l) - remark 4: In addition to the listed Temporal resolution, WOA13 consist of several decadal climatologies (that is correctly stated in 1.1 Objectives chapter, lines 5-10).

Please correct info in Table (all correct information is presented on page 19, part 4.3, lines 6-11).

5. Page 7: Figure 1 - could be made bigger.
6. Page 11, Part 3.1 The Diva..., Line 11: replace 'filed' with 'field' in '..a continuous filed approximating...'
7. Page 13, Fig. 3: would be good to have a titles/units for X&Y-axis.
8. Page 16, Fig 4: I would suggest to keep the T range for (b) plot similar to (c), & (d) plots.
9. Page 17, Fig.5: I would suggest to keep the same T range for a-d plots (let say 6-28C), so they will be visually comparable (as it is done for S on Figs 6, 7, & 8).
10. Page 25, Fig 13: top-aligning the a-b & c-d plots will improve the appearance of this figure. —

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