Ocean Sci. Discuss.,
https://doi.org/10.5194/os-2018-91-AC1, 2018

Ocean Science
Discussions
Open Access
EGU

Interactive comment on "The temporal variability of oxygen inventory in the NE Black Sea slope water" *by* Alexander G. Ostrovskii et al.

Alexander G. Ostrovskii et al.

osasha@ocean.ru

Received and published: 19 November 2018

We thank the reviewer for the suggestions that helped to improve the manuscript. In the revised manuscript, we try to reform its structure. In particular, we introduced two subsections in the section Results, which aim at more clear presentation of the main findings such as the periodic inertial oscillations in the distribution of oxygen. We also submitted the manuscript for advanced editing at Wiley Editing Services that is among the best language services, as far as we know.

Our response to the reviews includes: (1) comments from referees and the author's response, (2) the author's changes in manuscript (a marked-up manuscript version), (3) the revised version of the manuscript.

Printer-friendly version

Discussion paper

Here is our response to the comments of the review #1.

Consider to change the title for “The oxygen dynamics at the shelf edge of the Black Sea on the timescale of hours-to-days”. Our respond: The title of the ms was modified to emphasize the timescales of the oxygen variability.

Consider to delete the last sentence in the abstract because it is hardly the major and final result of this work. Our respond: The last sentence in the abstract was deleted.

Page 1, line 15: Unless I have missed it, any explanation or justification of the chosen depth of 30 meters has not been suggested in the text. Our respond: The profiler Aqualog operates below the subsurface floatation. Another instrument would be needed for observations in the top sea layer near the air-sea interface. We worked on such instrumentation recently and tested it in the Black Sea last month. Anyway, the explanation you requested is added into the section Methods.

Page 2, lines 1-2: This sentence comes from nowhere. Suggest a reference or some justification. Our respond: The reference is added.

Page 2, lines 5-6: CIL and other specific for the Black Sea features need an explanation or references. Our respond: The CIL and other important features of the stratification are defined in Introduction.

Page 2, line 11: The referenced publication by Oguz et al. is good but it is about modeling. Look for the recent publication by Kubryakov and Stanichniy or recently published data by Yunev et al., Mikaelyan et al. based on observations. Our respond: We decided to streamline the text as the second reviewer suggested. Hence we omitted these lines.

Page 3, line 5: I do not see any reason for discussions of global warming in this manuscript. Our respond: We want to mention a general context for the warming of the CIL.

Page 5, lines 20-24: More explanations are needed. Our respond: We added the

satellite image showing the mesoscale and submesoscale eddies in one of the days during the survey.

Page 5, line 31: If I understand it correctly, the currents are of opposite directions in the layers above sigma-theta 14.5 and below it. If it is true, it requires an extended discussion on the influence of this feature on the oxygen distribution. Our respond: This issue certainly needs special attention. But it is beyond the scope of our ms. We hope to publish relevant findings elsewhere.

Page 6, lines 8-17: This paragraph is very hard to understand for English. For example, I believe the first sentence should be "the oxygen distribution versus depth is exceptionally dynamic". The other sentences are equally vague in the present form. Our respond: The text is edited.

Page 6, lines 23-26: This justification for hypoxia should be somewhere in Introduction section. Our respond: Done.

Page 8, lines 5-8: I do not see any reason for this paragraph here. The lines 1-8 are deleted.

Page 9, References: I believe there are too many references for publications by the authors of this manuscript. There usually should be up to 25% of them, but not more. Our respond: We added several new references so the number of self-citations falls below 25%.

Figure 1. This figure is mentioned once and has never been discussed. Consider deleting it. Our respond: We modified the figure and mentioned it several times in the revised ms.

Figure 3. This figure is very complicated and hard to understand or follow. Our respond: This figure shows complexity of the current structure over the continental slope. The upper figure shows the along-shore current profile vs time, the lower figure shows the cross-shore current also in the depth-time plane. The positive directions are North-

westward and Northeastward (shown in red). The reversal currents are shown in blue. The isopycnals are superimposed. The figure clearly shows that the currents and the density variations and therefore the oxygen dynamics are coherent.

Figure 5. This figure is mentioned once and only for the sharp oxycline. I do not see any reason to plot several profiles and to apply 20 uM shift. Our respond: We deleted 3 of 5 profiles and showed the rest 2 profiles without the shift in the revised figure. âĂČ

Please also note the supplement to this comment:
https://www.ocean-sci-discuss.net/os-2018-91/os-2018-91-AC1-supplement.pdf

---

Interactive comment on Ocean Sci. Discuss., https://doi.org/10.5194/os-2018-91, 2018.