

Second revision of “Remote and local drivers of oxygen and nitrate variability in the shallow oxygen minimum zone off Mauritania in June 2014” by Soeren Thomsen et al.

General Assessment

The authors have successfully addressed my comments/concerns, and they have modified the manuscript accordingly or, at least, they provided convincing explanations of why not doing so. I can now support publication. However, I still have a number of minor concerns and small corrections to the manuscript that must be fixed before final publication.

Minor comments and technical corrections

- P2 – L16: suggests → suggest
- P2 – L28-29: “... an equatorward coastal jet whereas a surface intensified poleward flow with velocities well above 30 cm/s were* observed ...” → was
- P5 – L2-3: “These analyses include the results of the local AOU and OMP analysis in regard to remote (transport) and local respiration and remineralization processes.”. The construction of this sentence sounds a bit odd to me, you might want to consider rephrasing it, maybe: “These analyses include the results of the local AOU and OMP analysis in regard to remote (transport) and local (respiration and remineralization) processes.”
- P6 – L22-25: The description of the ADCP dataset is a bit confusing. It is not clear from this description how many instruments have been used. From this paragraph it seems that more than one instrument has been used, but this is not coherent with Fig. 4 caption. Please revise this paragraph.
- P6 – L31. Add units to the expression ($r = 1.8417 \cdot \text{ESD}^{1.8}$)
- P7 – L5. “(Kalvelage et al., 2015)” → Kalvelage et al. (2015).
- In P. 8 – L22-23 you state “In practice we fitted a **4th order polynomial function** to a group of 18 offshore AOU reference profiles using density as the independent variable” but in L27-28 you refer to “Moreover a smooth offshore AOU (σ) profile was needed that allow for fitting a **simple linear fit**”. Am I missing something or this is contradictory?
- P9 – L 10: “(here first guess Redfield ratio following (Karstensen and Tomczak, 1998), $8.625 = 138 \text{ O}_2 / 16 \sum \text{NO}_x$)” → revise the use of brackets in this sentence
- P9 – L17: “Mixing of water masses are* not resolved” → is (?)
- P9 – L23: “respired /remineralized signal” → respiration/remineralization signal
- P9 – L24: “were* regional remineralization” → where
- P10 – L4: “relatively cold waters”: consider writing “relatively cold surface waters” for more clarity

- P12 – L7: Delete “(not shown)” referring to the mixed layer depth, it is now shown in Fig. 3
- P13 – L20: “The along-shore circulation exhibited elevated variability during June 2014, which are* described based on two ship-based acoustic Doppler current profiler transects” → is
- Fig. 4 and associated description/discussion. Just for my curiosity, are the temporal changes in meridional velocity associated with changes in the wind forcing, while going towards the upwelling relaxation season? If the authors have any information about the origins of this variability, it could be useful to discuss it in the manuscript in relation to the increase in DO at the shelf break. Also, authors could add isopycnals to this figure to illustrate changes in the water mass distribution associated with the offshore shift of the poleward flow. This is just a suggestion.
- Fig 9 caption. Please specify what filled areas represent in this figure ($\pm 1SD$, 95% confidence intervals. . .) P23 – L1: “Cape Blance” → “Cape Blanc”
- P23 – L19: “Its difficult” → “It is difficult”
- P23 – L27: “. . . as the once presented ..” → “as those presented”