

General comments

This paper constitutes a well-written summary of a multi-faceted study of oxygen dynamics in lakes, semi-enclosed seas, fjords and the open ocean. The variety of experimental approaches that is presented provides an authoritative review of state-of-the-art techniques for monitoring oxygen and other biogeochemical properties in aquatic systems. As such, I find that this is a useful contribution to the scientific literature, and I recommend that the paper be accepted with minor revisions.

Specific comments

1. p12667, line13; give this transport estimate ($310 \text{ km}^3 \text{ yr}^{-1}$) in the standard oceanographic volume transport unit of Sverdrup ($10^6 \text{ m}^3 \text{ s}^{-1}$).
2. P19672, line 23; (j on panel I of Fig. 1)
3. P12675, line 21; what is the ascent speed of the instrumentation platform?
4. P12675, line 23; what oxygen sensor (manufacturer and model number) was used?
5. P12675, line 26; mention that this sampling interval of 8 hours works well because of the absence of tides in the Baltic Sea. In other marine systems with semi-diurnal tides, a shorter sampling interval (6 hours or less) would be necessary to avoid tidal aliasing of the low-frequency signals.
6. P12676, line 5; delete “breaking”. Internal waves do not need to break in order to cause high temporal variability.
7. P12676, line 17; lateral transport processes and vertical oscillations rather than
8. P12678, line 28; 20 nmol L^{-1} instead of $20 \text{ } \mu\text{mol L}^{-1}$?
9. P12681, line 27; replace “global” with “remote” or “larger-scale”, as the NAO is not a global process.
10. P12682, line 17; NEMO float 144 (WMOID 7900465) appears on the Argo Information Centre, but not float 145. Why?
11. P12683, lines 18-20; this text gives the false impression that oxygen fluxes are predominantly controlled by diffusive fluxes, with convective fluxes playing only a secondary role or no role at all. This statements needs to be qualified. Oxygen’s piston velocity does indeed prevent the mixed layer from becoming fully saturated during short-lived convective events. But this does not mean that convection does not play a role in injecting oxygen from the surface layer into the CIL.
12. P12691, line 2; substantially increased? Do the confidence intervals of both slopes overlap? Are the slopes statistically different?
13. P12704, lines 19 and 26; define what are “K-strategists” and “r-strategists”.
14. P12719, lines 1-14; mention that the Black Sea Argo-O2 float data can be downloaded from the two Argo GDACs (www.argo.net). If this is not the case yet, then the data from these two floats should be uploaded to the Argo GDACs where all other Argo data reside.
15. P12747; do the numbers 237 and 931 represent optode serial numbers? Right panel: were both oxygen sensors 0.3 m above the seafloor? Or was one at 0.3 m and the other at 1.0 m as for the left panel?

16. P12771; Fig. 27; the color schemes for oxygen sensor data and oxygen SMHI reference data should be made more consistent with each other. When possible, always match the same depths (sensor or SMHI) with the same color.

Minor corrections

1. p12661, line 23; the term “hypoxia”
2. p12662, line17; EU instead of EC?
3. P12663, line 3; delete “water”
4. P12682, line 22; of the two floats
5. P12690, line 15; replace “agree to” with “are consistent with”