

On the role of circulation and mixing in the ventilation of oxygen minimum zones with a focus on the eastern tropical North Atlantic

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Reply to the editor.

Dear Dr. Levin

Thank you and both reviewers very much for the very helpful criticism and the careful work with the manuscript. We have addressed below the points raised in the Editor review.

Yours sincerely,

Peter Brandt

Editor: This paper is nearly ready for publication. Please edit line 925-927: This revised sentence is a little awkward and reads a bit contradictory. Reviewer 1 suggests you reword to something like: "On interannual to multidecadal time scales, oxygen variability in the ETSP is expected to be influenced by similar processes as those influencing the ETNA (see end of Sect. 7), albeit in response to the different large-scale climate modes that impact each ocean basin. In the Pacific"

Answer to the editor: We changed the sentence accordingly. Thank you very much.

Editor: However the other reviewer maintains that: "There are really important differences in the dynamics of the thermocline (interannual modes in the Pac as opposed to seasonal/intraseasonal modes in the Atlantic) well as on the ocean - shelf interactions between the two basins. these translate to different climate sensitivities. It should be a paper about the ETNA and the removal of the ETSP will clarify the goals of the paper and its implications."

I would like the authors to at least acknowledge the differences and work to keep the focus on the Atlantic.

Answer to the editor: We agree that it is worth to emphasize the differences between both oceans. We included in the first paragraph of the Sect. 9, Summary and discussion two sentences to highlight the importance of comparing Atlantic and Pacific OMZs: "There are substantial differences in the dynamics of the thermocline with a dominance of seasonal over interannual modes of variability in the Atlantic as opposed to interannual modes dominating in the Pacific as well as in the ocean-shelf interactions, that are possibly associated with different climate sensitivities of the OMZs in both oceans. However, a comparison of the factors of deoxygenation in the Atlantic and the Pacific might help to assess the possibility of a shift of the ETNA from hypoxic to suboxic."