

Interactive comment on “Oxygen budget for the north-western Mediterranean deep convection region” by Caroline Ulses et al.

Anonymous Referee #1

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Review of Manuscript “Oxygen budget for the north-western Mediterranean deep convection region” by Ulses et al. General comment to the Authors and the Editor: The ms presents an analysis, based on in situ data and model results, of the dissolved oxygen inventory of the dense water formation area in the NW-Mediterranean during one of the most active years in terms of dense water formation. They assess the inventory on a seasonal and an annual scale, describe the role of deep convection in ventilating the intermediate and deep layers of the basin, and make inferences on primary production in the euphotic layer. The ms is rigorous, very well organized, clearly written, with well-announced objectives and a logical structure that guides the reader through the author’s reasoning. I recommend publication of the ms after minor revision. Some more detailed comments are: Everywhere in the paper it should be written “Gulf of Lion”,

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not “Lions”. Title: I would suggest “of” or “in the north-western” instead of “for” L35 also increased salinity reduces the solubility L40 “of marine ecosystems” L41 “implications for” L48 “subsequent density increase of surface waters” L49 “induces convective missing of surface” L56 is convection mainly responsible for this higher nutrient supply or the preconditioning given by the cyclonic circulation? In the Introduction it should be mentioned that concerning the OMZ, the Mediterranean Sea is far from what we observe in the ocean, maybe giving some numbers to exemplify L170 “Study Area” L194 instead of “Group”, use “initiative” or “programme” L250 use the acronym LIW L252 move “respectively at the surface. . .transect” at the end of the sentence L254 “During the spring cruise period” Figure 5: I could not find the explanation on why you integrate down to 1800 m and then down to 1000 m. L639 “the surface layer of the deep convection area” is the source for the intermediate and deep layer, not the convection area itself, which comprises the whole water column.

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