

In overall, the authors have answered to reviewers requests. The discussion has been reworked, and new sections added (3.1 model validation, 3.2.3 Physical drivers of intra-seasonal variability in hypoxia) as well as new figures.

Thank you to the authors for having proceeded to an additional simulation with repeated annual forcing. The results of the extra figure show indeed no trend in the model behavior or budget. This fully answers to one of my main concern.

Concerning the data-model comparison, the other main concern, shared by other reviewers, a new section has been added (3.1). Unfortunately, these are mostly text already present in the supplement of the previous version, and new text referring to the (already existing) supplement figures.

The main answer to the data-model comparison request is that data are missing. Which may be true. Still, this is not completely satisfying in the sense that the model produces detailed time series of many variables, and that the inter-annual and intra-seasonal variability are discussed in depth, while the model “validation” is made at punctual parameters (data availability).

Both in introduction (line 117) and discussion (line 511), the authors write that “a 6-year simulation was performed and validated”. I disagree with this too strong sentence. I agree that the model skills are reasonably good. But the model has not been “validated” over the 6 years. This is important : after section 3.1, only model results are presented. In Figure 3, the model is evaluated on “static” features. In figures 4 and further, model results are discussed in their “dynamics”. For non-modelers, this may be confusing. Still I appreciate the work.

Many values of your results have changed since previous submission : maximum hypoxic extent in section 3.2, all values in the table of Oxygen budget in supplement. Idem for correlation coefficients in Figure S7 (previously Figure S6). Is the reason a change in the region definition, or any change in the conducted simulations or the model parameterization itself ? Sorry, I did not find any explanation in the answers to the three reviewers. It is probably of minor importance, but it would be better to clarify.

Supplement :

Figures from the supplement have been improved for visibility of color dots.

In Figure S7 (previously Figure S6), the model-data comparison of Surface Chlorophyll, surprisingly, the plot for February has disappeared. This was one of the less favorable !