

Thank you for your very positive and encouraging review. We respond to your suggested revisions below.

1. Explain better the physical interpretation of the annual mass flux driving the physical model. Does this implicitly represent the seasonal cycle of wind forcing in some way? Be more explicit about how the forcing differs in the conception of the OMZ as a consequence of ventilated thermocline theory. How might the results differ with climatological wind stress forcing instead?

In the methods section we note that the forcing we use is an oscillating mass flux into and out of the active layer of our model. It is a simple way to induce an annual cycle in the equatorial region that, in reality, is associated with the annual cycle of wind stress, but, as we note in the revised text, is not intended to be realistic. Later, in the summary and discussion section, we have expanded the discussion comparing our results to the ventilated thermocline theory approach. We note that the forcing we use to drive our model excludes wind forcing for a subtropical gyre, as required by that theory, and is confined near the equator with no forcing in the latitude band of the tracer minimum shown in Figure 3b. We also note that the observed East Tropical North Atlantic Oxygen Minimum Zone sits south of the subtropical gyre in the North Atlantic and so is unlikely to be associated with a shadow zone as in the ventilated thermocline theory. To be honest, we do not see what would be gained by running our model with climatological wind forcing. For one thing, the ventilated thermocline theory requires a minimum of two active layers and so is not supported by the simple  $1\frac{1}{2}$  layer model we use.

2. Explain the rationale behind the oxygen source term better. Perhaps make a comparison between Fig3b and Fig1a more explicitly.

We have added some material on this when the forcing is introduced in the methods section, noting the motivation from Figure 1a and also the notion that the most recently ventilated water is associated with the western boundary current system. Also, when discussing Figure 3 we now note the similarity between the tracer distribution shown in Figure 3b and the oxygen field shown in Figure 1a.

3. Consider revising the beginning of the introduction. I appreciate that the paper is concise, but starting the paper with "Figure 1a..." is a bit over the top.

A couple of sentences have been added by way of introduction.