

Response to Reviewer

Manuscript: egusphere-2025-4712

Oxygen minimum zones in the Indian Ocean and their response to changes in the Indian Ocean meridional circulation

We thank the reviewer for this helpful comment. We have revised the relevant sentence in the Discussion to clearly distinguish recent observations from century-scale projections and to frame the comparison around whether signals of projected changes have emerged in observations. The paragraph now reads as follows:

“In the Indian Ocean, the increasing equatorial oxygen concentrations and the associated reversal from expansion to contraction in the AS OMZ since 2013 have been attributed to an enhanced inflow of oxygen-enriched water masses from the southern Indian Ocean gyre and decreasing oxygen consumption (Liu et al., 2024), mechanisms that have also been identified in century-scale projections (Vallivattathillam et al., 2023; Ditkovsky et al., 2023; Kwiatkowski et al., 2020).

Our analysis is consistent with these findings, raising the question of whether signals of projected changes have already emerged in observations, as the Indian Ocean OMZs experienced increased physical oxygen supply due to a greater contribution from remote SWTs (mainly STSW) across all transects in recent years compared to 1995”.