Annex of new figures and tables proposed to correct the manuscript.

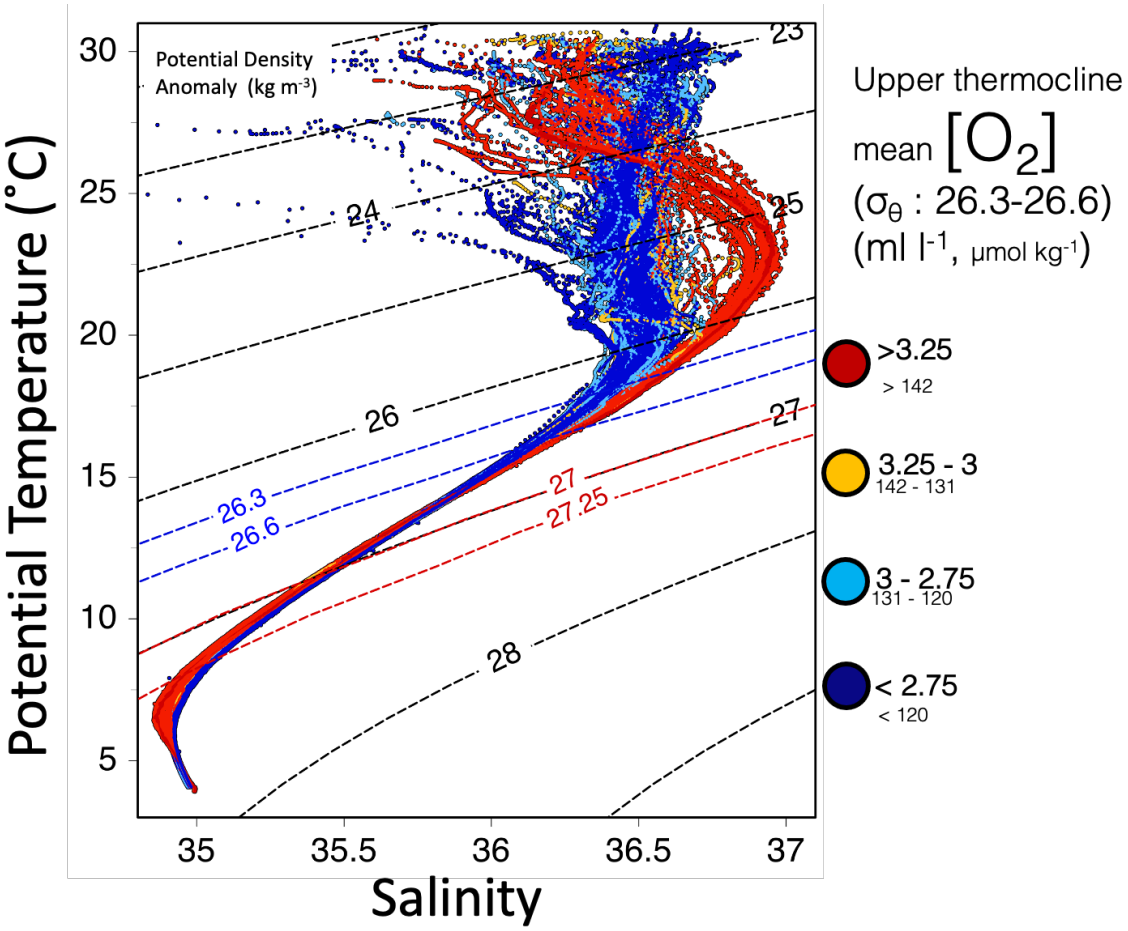

Figure 7. T-S diagram of all XIXIMI stations, color coded according to the upper thermocline oxygen range.

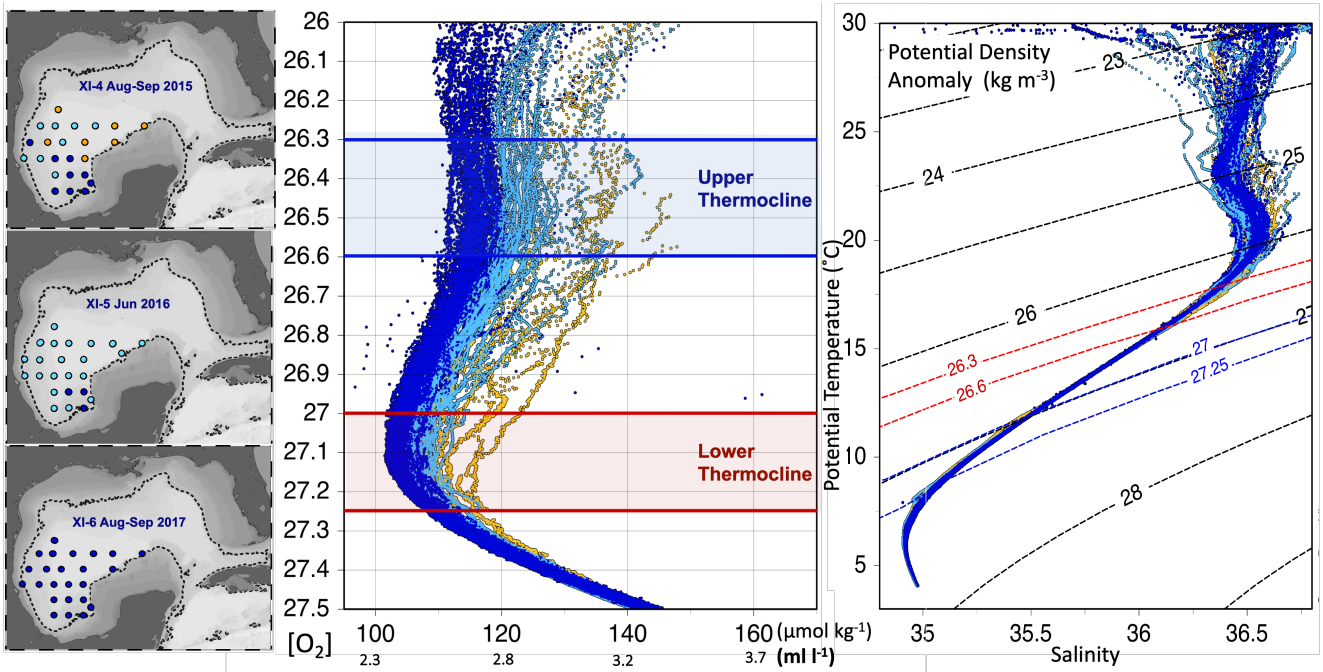

Figure 8. Maps of 24 stations from cruises XIXMI 4, 5 and 6 in the same coordinates. Density profile of oxygen from 24 stations from cruises XIXMI 4, 5 and 6. T-S diagram of 24 stations from cruises XIXMI 4, 5 and 6 in the same coordinates.

Table 5
Mean oxygen, salinity and temperature in the upper and lower main thermocline of the Gulf of Mexico (data from 24 stations located in the same coordinates for each cruise)

	Mean $[O_2]$ (ml l^{-1}, µmol kg^{-1})		**Mean Salinity**		**Mean Temperature (˚C)**	
Cruise	σ_θ (kg m^{-3}) 26.3-26.6	σ_θ 27-27.25	σ_θ 26.3-26.6	σ_θ 27-27.25	σ_θ 26.3-26.6	σ_θ 27-27.25
XIXIMI-4 Aug-Sep 2015	**2.87 ± 0.19** 125 ± 8.6	**2.8 ± 0.08** 107.8 ± 3.4	**36.29 ± 0.88**	**35.26 ± 0.14**	**17.18 ± 0.62**	**9.9 ± 0.9**
XIXIMI-5 Jun 2016	**2.84 ± 0.06** 123.5 ± 2.7	**2.8 ± 0.05** 107.9 ± 2.3	**36.29 ± 0.82**	**35.24 ± 0.13**	**17.18 ± 0.61**	**9.84 ± 0.99**
XIXIMI-6 Aug-Sep 2017	**2.67 ± 0.05** 115.6 ± 2.2	**2.8 ± 0.05** 105.1 ± 2.1	**36.27 ± 0.85**	**35.16 ± 0.13**	**17.04 ± 0.63**	**9.76 ± 0.98**

A constant oxygen change rate without LCE detachment was assumed as the oxygen difference measured between cruises XIXIMI-5 to 6.

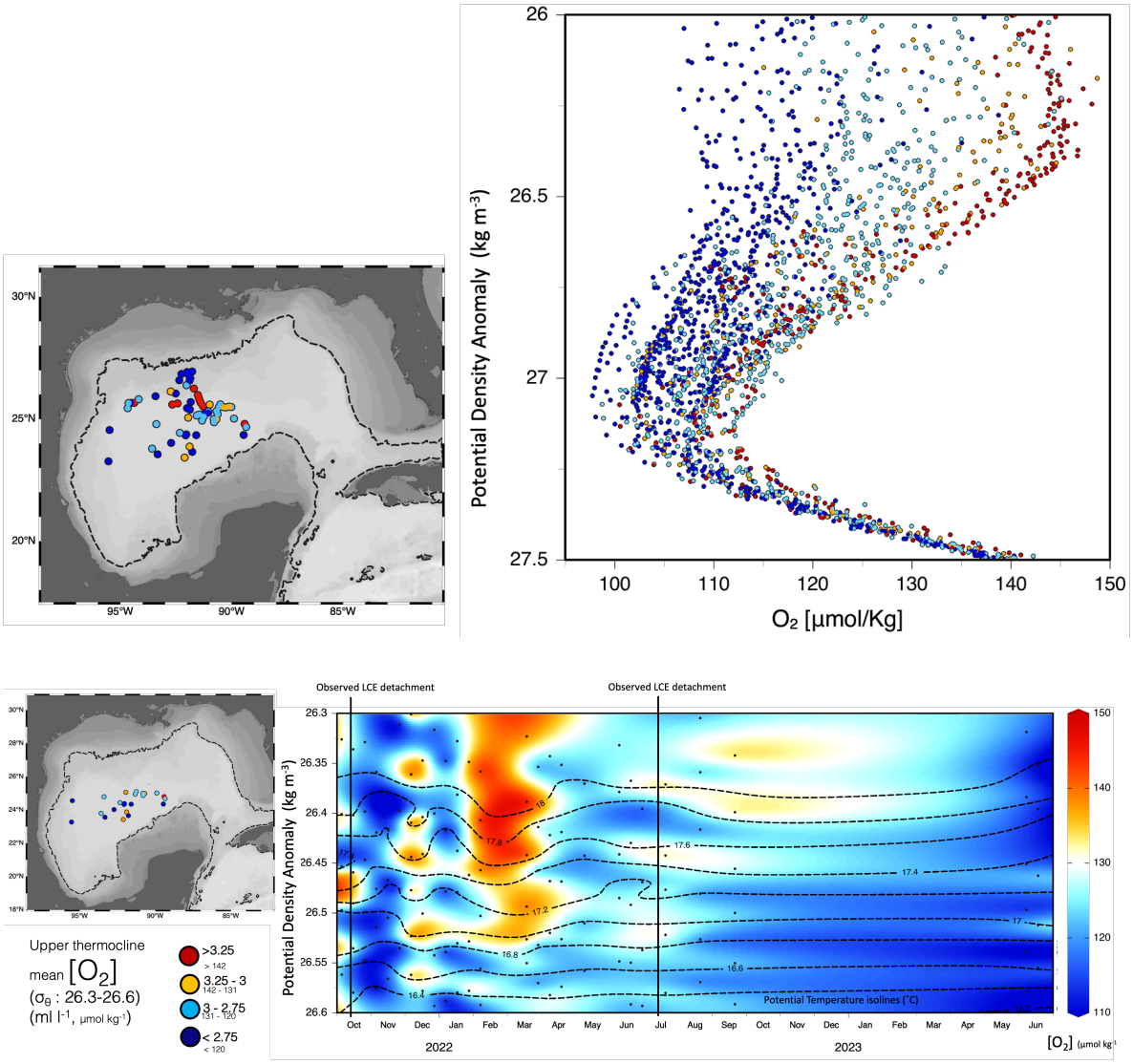

Figure 9 . Data from BioARGO Buoy 4903622 from October 2021 to june 2023.
Temporal variability of BioARGO buoy 4903622 for stations at and south of 25˚N, map of stations color coded according to the upper thermocline oxygen range

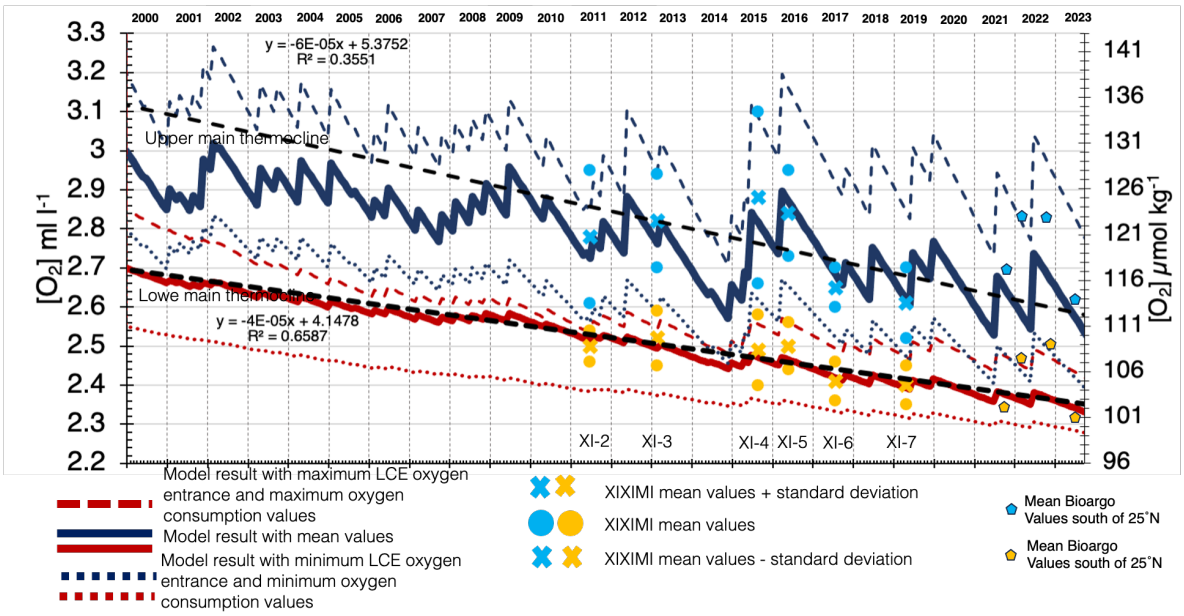

Figure 6 remade. Oxygen variability estimated from box model for the upper (blue) and lower (red) thermocline from 2000 to 2023, with data from XIXIMI cruises and BioARGO buoy 4903622.