

Supporting Information for

**[Variability of dissolved oxygen in the bottom layer of the southern Senegalese shelf]**

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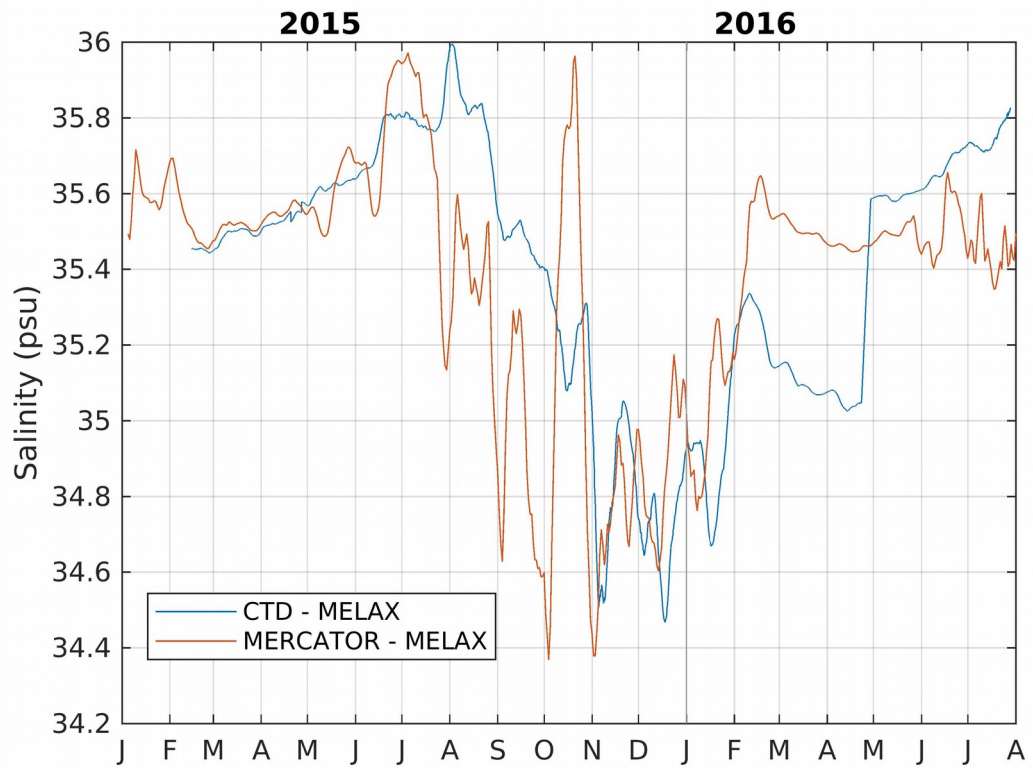
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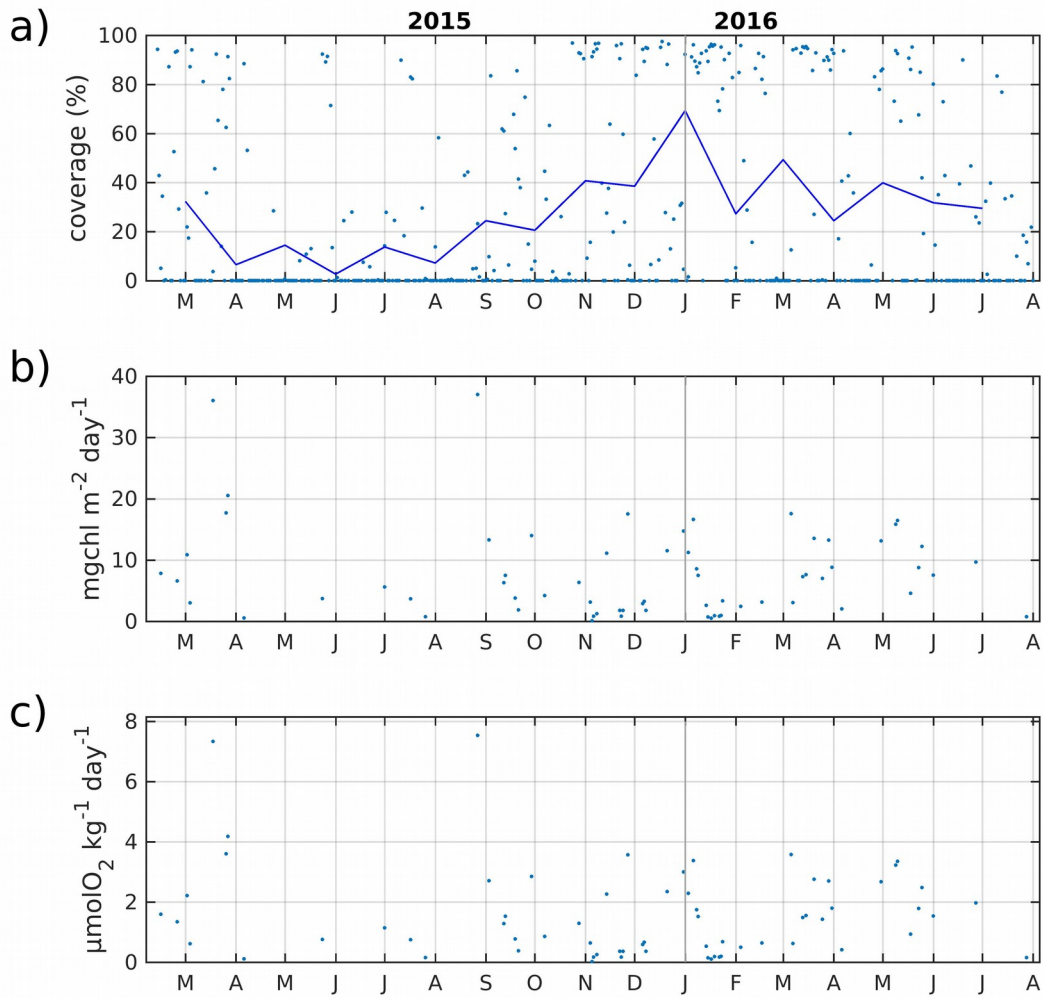
Figures S1 to S6

**Introduction**

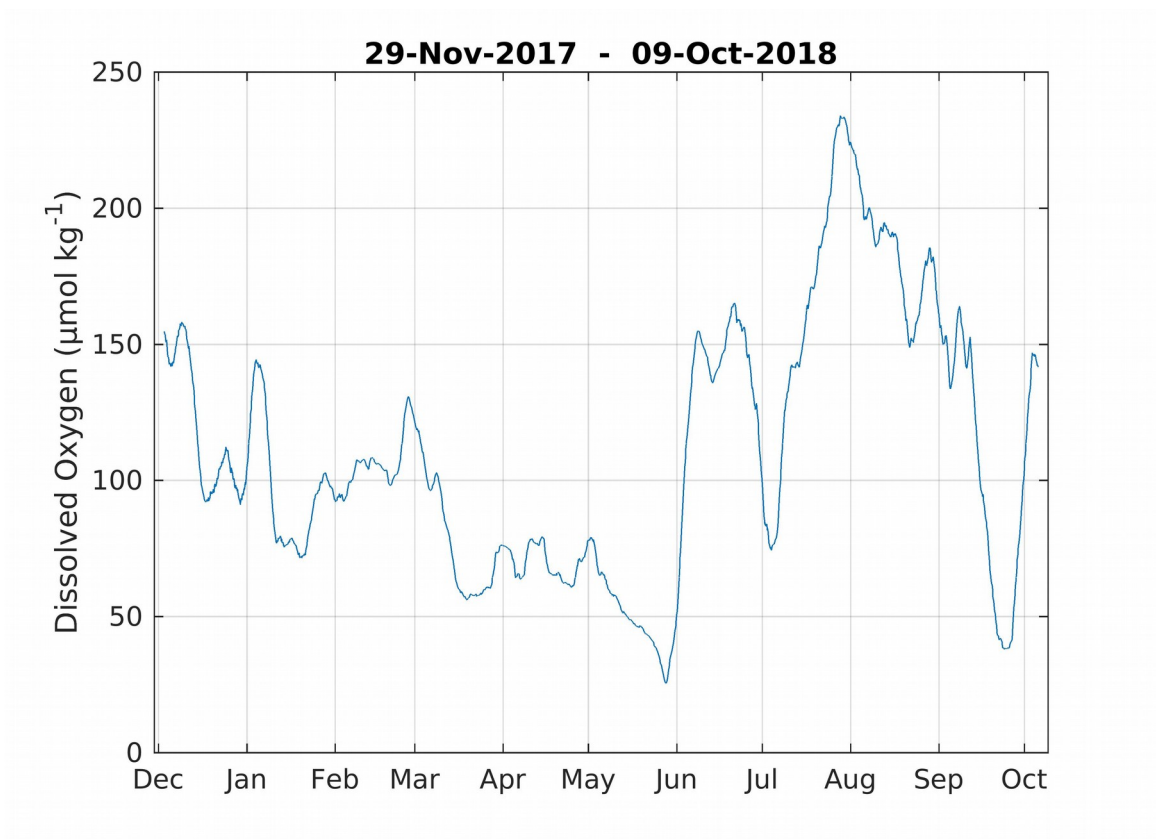
The supporting information provides the supplementaries figures as cited in the main article.



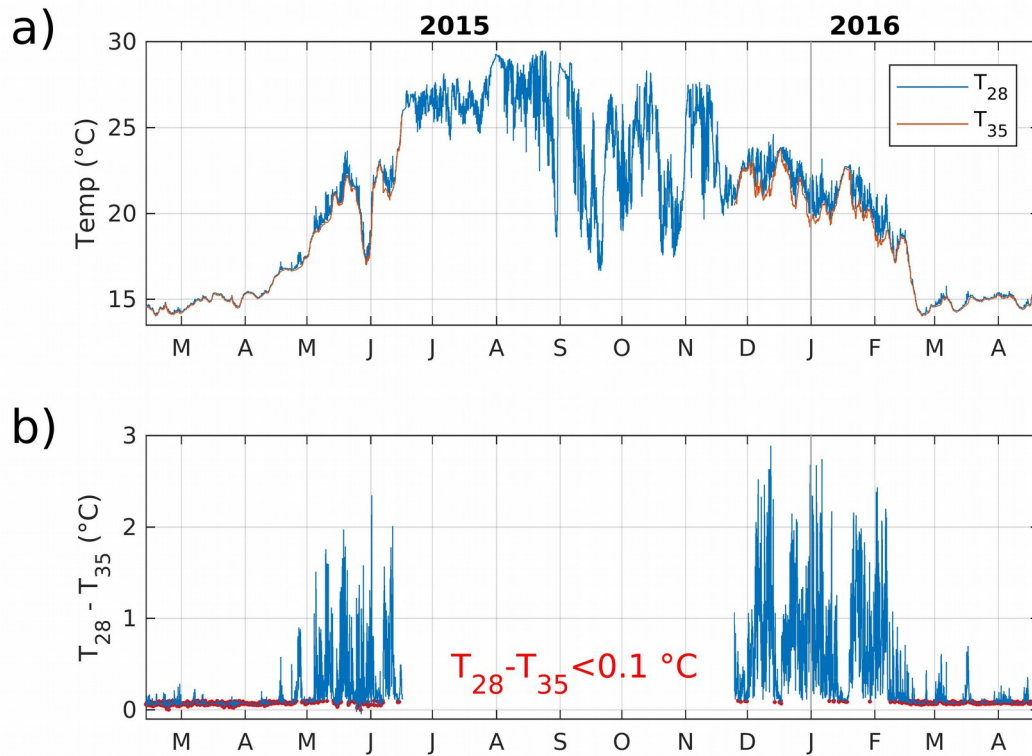
**Figure S1.** 7-day smoothed time series of measured (blue) and modeled (red) near-bottom salinity (28 m depth) at Melax Station between February 2015 and August 2016.



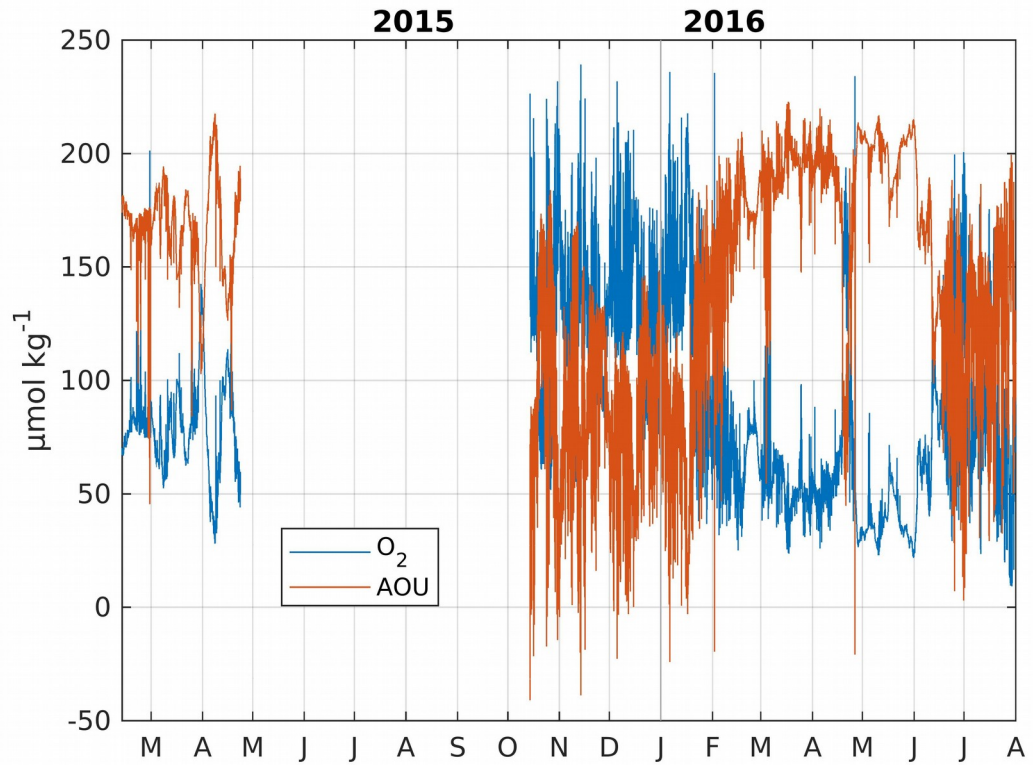
**Figure S2.** Modis SOM-NVA surface chlorophyll data averaged between 14°N-14.75°N and from the coast to the 100 m isobath, from February 11, 2015 to August 1, 2016. (a) Daily (points) and monthly (line) percentage of coverage on the area (valid pixel number / total pixel number; note that 48% of the daily coverage is zero); (b) organic matter production rate (mgChl m<sup>-2</sup> day<sup>-1</sup>) in a 10 m-thick surface layer; (c) respiration rate (μmolO<sub>2</sub> kg<sup>-1</sup> day<sup>-1</sup>) calculated from (b) (see methodology section).



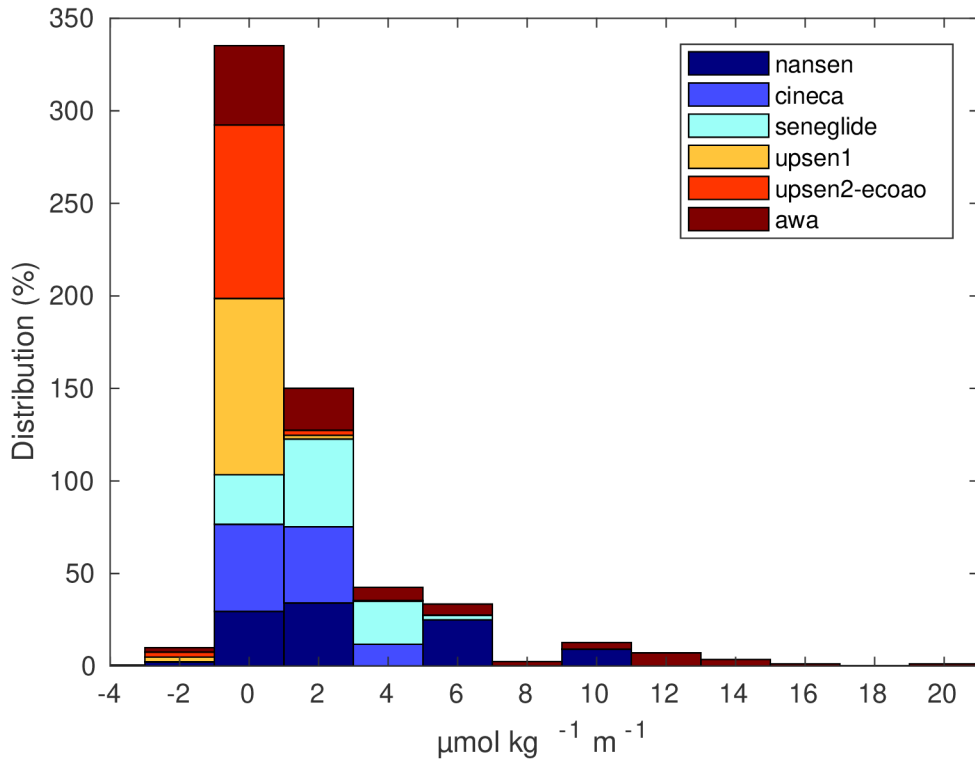
**Figure S3.** 7-day smoothed time series of DO (28 m depth) recorded at Melax station between December 2017 and October 2018.



**Figure S4:** (a) High-frequency variability (90 min frequency) of bottom temperature (35m,  $T_{35}$ , orange) and temperature 7m above (28 m,  $T_{28}$ , blue). (b) Difference between  $T_{28}$  and  $T_{35}$  (blue). Red points indicate where the temperature difference is below 0.1 °C.



**Figure S5:** Time series of DO and Apparent Oxygen Utilization (AOU =  $[O_2]_{\text{saturation}} - [O_2]_{\text{measured}}$ ), see methodology section) recorded at a 10 min frequency over the studied period.



**Figure S6:** Distribution of DO vertical gradient ( $\mu\text{mol kg}^{-1} \text{m}^{-1}$ ) calculated from the field experiments DO profiles (NANSEN, CINECA, SENEGLIDE, UPSEN1, UPSEN2-ECOAO and AWA). Location of the measurements are shown in figure 1.