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Projections of oceanic N_2O emissions in the 21st century using the IPSL Earth system model

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The O_2 modulating function $f(O_2)$ in P.OMZ is defined as,

$$f(O_2) = \begin{cases} \dfrac{O_2}{O_2^{*1}} & O_2 < O_2^{*1} \\ 1 & O_2^{*1} < O_2 < O_2^{*2} \\ 0.7 \cdot exp - 0.5(O_2 - O_2^{*2})/O_2^{*2} + \\ 0.3 \cdot exp - 0.05(O_2 - O_2^{*2})/O_2^{*2} & O_2 \geq O_2^{*2} \end{cases}$$

where O_2^{*1} is 1 μmol L^{-1} and O_2^{*2} is 5 μmol L^{-1}. The shape of the function is shown in Fig. S1.

Fig. S1: Oxygen modulating function $f(O_2)$ in the low-O_2 production pathway term included in P.OMZ from Goreau et al. (1980).

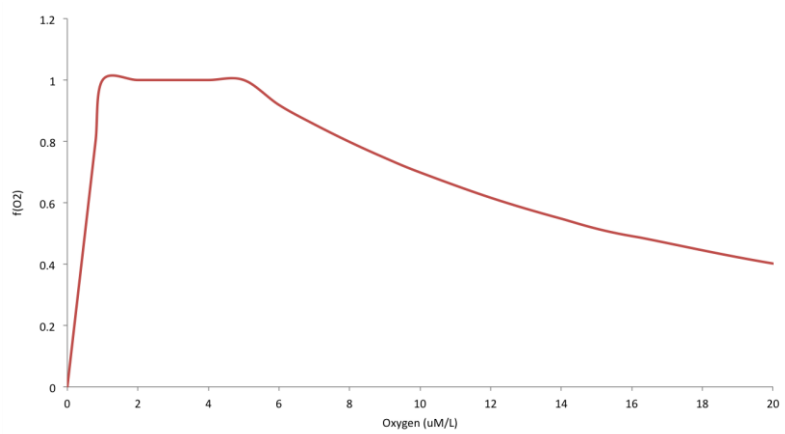

Fig. S2: Vertically integrated (a) high-O_2 and (b) low-O_2 production pathways (in gN m^{-2} yr^{-1}) in P.OMZ for the averaged 1985 to 2005 historical simulation.