Supplement of

Projections of oceanic N$_2$O emissions in the 21st century using the IPSL Earth system model

J. Martinez-Rey et al.

Correspondence to: J. Martinez-Rey (jorge.martinezrey@univ-brest.fr, jorge.martinez-rey@lsce.ipsl.fr)

The copyright of individual parts of the supplement might differ from the CC-BY 3.0 licence.
The $O_2$ modulating function $f(O_2)$ in P.OMZ is defined as,

$$f(O_2) = \begin{cases} 
\frac{O_2}{O_2^{21}} & 0_2 < O_2^{21} \\
1 & O_2^{21} < O_2 < O_2^{22} \\
0.7 \cdot \exp - 0.5(O_2 - O_2^{22})/O_2^{22} + 0.3 \cdot \exp - 0.05(O_2 - O_2^{22})/O_2^{22} & O_2 \geq O_2^{22}
\end{cases}$$

where $O_2^{21}$ is 1 µmol L$^{-1}$ and $O_2^{22}$ 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.