



Figure S1: Influence of permitting scavenging below  $O_{2min}$ . **(a)** Vertical profiles of globally averaged dissolved iron concentrations (dFe) without (black) and with (green) permitting scavenging below  $O_{2min}$ . **(b)** Vertical profile of the averaged absolute deviation between simulated and observed dFe without (black) and with (green) permitting scavenging below  $O_{2min}$ . **(c)** Difference in surface dissolved iron concentrations and **(d)** difference in surface phosphate concentrations between the simulations with and without permitting scavenging below  $O_{2min}$ .