

Interactive comment on “Isotopic fractionation of carbon during uptake by phytoplankton across the South Atlantic subtropical convergence” by Robyn E. Tuerena et al.

Anonymous Referee #1

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1/ A further comment concerning the following reply of the authors (page C7):

"Although an increase in temperature in the ĩAgure shows an increase in $\delta^{13}\text{C}_{\text{POC}}$ and a decrease in ep, this will have very little effect compared to the predicted changes in carbon availability and cell size. "

I suggest authors make this future change (decrease) in $\text{d}^{13}\text{C}_{\text{POC}}$ more visible to the reader by marking it in Figure 9b. For example they could mark the jump from the 400 ppm to the 500ppm level with increasing temperature by an arrow.

2/ In their reply on the question about the latitudinal distribution of $\text{d}^{13}\text{C}_{\text{-DIC}}$, the authors don't really clarify the issue, I believe. Of course Southern Ocean $\text{d}^{13}\text{C}_{\text{-DIC}}$ is

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very low because of upwelling of deep ocean waters depleted in ^{13}C -DIC there, a phenomenon not present in the North Atlantic. So I feel the question about which process really imposes lower $\delta^{13}\text{C}$ -DIC in the North Atlantic is not satisfactorily resolved by their reply. Admittedly this is not the subject of their paper.

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