

This work is very interesting and worth for publication in BG. The revised version has significantly improved the manuscript with appropriate reply to most of my comments. I still have few minor/moderate suggestions listed below.

Damien Cardinal

L 100-103, L260 and all over the manuscript. The st dev provided in the revised version were needed are welcome. It is however not obvious that isotopic signatures are significantly different (e.g. 5.5 +/- 0.4 vs. 5.1 +/- 0.2 pmil). Simple stats should be reported to limit the discussion to significant differences only. Note that this remark applies to the whole manuscript, often – but not always – average and SD are provided, but never p-value and significance of the differences when comparing concentration or isotopic signatures of water masses (t-test is probably appropriate most of the time).

L124-125 Unclear / meaningless. Need to rephrase.

L150-168 It'd be good to put the answer to my comment on frozen samples and DSi measurements in the revised paper to inform the readers that this has been handled and also to underline that it's not a standard protocol.

Supplementary material. I did not find any of the 4 supp. mat., which prevented me to evaluate them and the discussion on the main text where they are referred...

Fig. 6 Incomplete caption. To which depths these lines were drawn (it's mentioned that red dots are from the mixed layer, but what is the depth range of the black data?). Refer in the caption to how f has been calculated (table 2).

Fig. 8 + L460 + L 615 + section 4.2.6 starting L715: A fig. $\delta^{30}\text{Si}$ vs $1/\text{DSi}$ would really help to look at mixing. It could ideally be in a second panel in Fig. 8 since the current panel (and the text) clearly shows that PSW are largely scattered and are not explained by the Rayleigh system displayed.

Section 4.2.6 and Fig. S4. This figure is very informative, I'd put it in the main manuscript. With this figure, there could be a brief discussion on what model is the more likely to represent the data. It is quite clear that the open model is more coherent since (i) r^2 is much better than Rayleigh and, (ii) the slope is more consistent with global epsilon (-1pmil).