

Associate Editor Initial Decision: Publish subject to minor revisions (Editor review) (28 Apr 2015) by stephane blain

Comments to the Author:

Dear Liliane and Co authors

I have read carefully your responses to the reviewers #1 and #2 and your new version of the manuscript. I think you have correctly addressed all the comments and questions of the reviewers and that you have modified accordingly your manuscript, with the exception of the section 4.4 in the discussion. This section presents still several weaknesses. In the first part of this discussion you recognize that the interpretation that can be done is essentially qualitative. But then in the second part of the discussion quantitative relationship is established between dissolved iron concentrations (extrapolated but not measured) and NPP (extrapolated but not measured). This relationship is highly speculative because it relies on a very small number of observations (2) and on numbers coming from extrapolations. Another matter of concern is that the two situations are for two different dates in the season, therefore there are many factors other than DFe concentrations could have contributed to the observed changes in NCP between the two dates. Finally the last sentence of the paragraph is really unclear.

Consequently my recommendation is

To move lines 375-387 from section 4.4 at the end of the section 4.2 and to remove the lines 388 -401. of section 4.4

as a consequence :

- the section 4.4 Carbon NCP and dissolved iron is removed and 4.5 air-sea flux will be section 4.4. in the new version of the ms

These changes have been made.

- in the abstract remove line 36 (from Based) – 40

This has been done.

- in the conclusion remove line 437- (from Within the plume ...) – 441 (until iron availability).

This has been done.

other minor corrections

-line 19 replace biological carbon consumption with biological inorganic carbon consumption.

This has been done

line 43 modify : anthropogenic carbon uptake by the ocean.

OK

line 94 Copin Montaigu 2000 not 2004?

It is 2000. It has been corrected.

line 120 add “.” after communication)

OK

line 148 “specifically of O₂ of 9 ms⁻¹” probably wrong. to be modified

It was not wrong but poorly explained. We have changed the sentence and write: “ with U the wind speed at 10m height in ms⁻¹ and U₀ a model-derived constant wind speed value equal to 9 ms⁻¹ to compute bubbles O₂ air-sea flux.”

line 286 does not .

This has been corrected.

line 319 use NCPc once you have defined the acronym.

OK.

line 349-350 : has the ability.... calculation”. simplify the sentence

We have modified the sentence and written: “ By contrast, for oxygen, air-sea exchange represents 50% to 135% of the outgassing of O₂ , which results in a large uncertainty in the calculation of NCP_{O₂}. ”

for the entire manuscript check that numbers and units are separated by a space and that the different units are separated by a space and not a dot.

We have checked these points

When all these final corrections will be done the manuscript can be published in the special issue.

Best regards

Stéphane