Review for Fourquez et al.

General comments

The paper is generally well written and expands and explores the very scare data of intracellular iron uptake in phytoplankton and bacteria. The comments are only minor corrections and I can thoroughly recommend its publication.

Inbetween numbers and unit there is no -, ie it is 500 mL acid washed bottles and not 500-mL …

Add n= XX each time an average and standard deviation are given.

1. Introduction

Line 37: Reference needed

Line 53: Since there are only 3 Southern Ocean island system investigated, it would be apropriate to reference all three, hence add Nielsdottir et al 2012.

Line 54: change to 'natural ferilized regions'

Line 58: As a reader I would prefer figure 1 to show surface chl with the incubation locations superimposed, so the reader can see 'the blooms downstream the island'.

Line 61: Delete 'a few'

2. Material and Methods
    Line 77: 500 mL acid washed polycarbonate
    Line 80: change to: three times, followed by three rinses
    Line 111: Bran or company for the Nickel screens needed
    Line 119: remove – between filtered seawter, change 'during' to 'for'
    Line 141: Ryan-Keogh et al 2013 have shown that 0.2 nM Fe added is sufficient to stimulate growth.
    Line 157: Reference for method needed
    Line

3. Results
    Line 175: Remove 'as'
    Line 179: Space needed between umol and Fe

Line 193: how many replicates, please write n = ...

Line 198: Change to: while at station A3-2 pico-nanoplankton was highest (   ) and remove 'this was the case for'

Line 200: Exchange 'measured' with 'observed'

Line 217: Replace 'a' with any, so At any given station...

Line 241: New line wrongly placed

Line255-258: Work by Zubkov et al 2007 of bacterial 55Fe uptake shows that iron uptake is linear for 10-12 h, but after that it takes the shape of an exponential curve. Also, work by Maldonado et al 2005 showed variance in iron uptake over 24 h. I would suggest you go back to your data and look at iron uptake and not the Fe:POC uptake and compare it with other published data. Also, other published data would suggest that the way you derived the Fe quota for heterotrophic bacteria, if you calculate it for 24 h. However, if you use data for shorter time periods, e.g. 10 h it is a different matter.

4. Discussion

Line 294: List Sunda and Huntsman 1995 too

Line 308: Replace ' first step forward, even if not perfect', with 'A step forward'

Line 308-326: Reads more like a review and instead of discussing the data of this paper in context with other studies.

Line 331: Are there no more Southern Ocean studies with a Fe:C ratio?

Line 338: Incert 'of' located downstream of the plateau

Line 340-344: Please explain this further with data included

Line 353: Boyd et al 2012?

Line 365-367: I am not sure I buy the argument that primary productivity and bacterial Fe uptake are negatively correlated, as the bacteria also need the phytoplankton for all its organic nutrient needs. And with only 3 points it is almost possible to make any correlation positive.

Line 373: change to 'may also benefit heterotrophic bacteria...'

Line 382: Incert ' play a role...'

Line 386: I can only find a reference to the Obernosterer paper in this issue that 'high C availability leads to an increas in Fe demand', so if you want to keep this sentence I suggest you add some of that data, or keep it out

Line 394: Remove in so it reads ' Southern Ocean suggests an intimate connection...'

Figure Captions

Line 420: Incert ± 1 SD

Line 425: Station E-4W

Line 426: Grey circels: Station E-2

Line 436: r2=0.97

Figure 3: Percent (%) contribution to the totaltal Fe uptake...

Comment to Table 1: Table text should decribe the table content. Therefore Experimental approach a,b,c should be described succintly. Standard deviations or standard error should be given listed

including number of samples(n) used to derive the average. OR, my personal opiniton is that it would give more sense to give the nutrient concentration at that particular station where the incubation was initiated, instead of an average (but also with ST and n).

Line 579: Should read Table and not Tableau