

## ***Interactive comment on “Pigments, elemental composition (C, N, P, Si) and stoichiometry of particulate matter, in the naturally iron fertilized region of Kerguelen in the Southern Ocean” by M. Lasbleiz et al.***

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Received and published: 6 June 2014

Here, Lasbleiz and co-workers present a large effort to describe the biogeochemistry of the KP area. The area is of great (and broad) scientific interest as an area to test for the impact of ‘natural’ Fe fertilization. Furthermore, the authors have collected an impressive dataset. Therefore, I look forward to seeing the study published and only have comments regarding the interpretation.

Is the data from this cruise publically available? I hope so as many researchers are

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modeling the processes around KP for the same reasons as the motivation for this study. Thus, having the data available would greatly enhance the importance of the study.

Figure 1: You have a lot of stations (e.g., A3) that are not mentioned in the legend.

Figure 8: I recommend to add a header to each sub panel indicating the element as I had to go back forth between legend and figure panels.

Figure 13: Are these values the average ratios of sample pairs or is it the overall ratio integrated for the top 200m? As you are having some issues with detection limit for POC and PON, I would recommend that you only include pairs with reliable estimation of the concentration.

Figure 13: You should represent the geometric and not arithmetic mean in the boxes.

I wonder if there is a correlation between either chlorophyll or fucoxanthin concentration and the elemental ratios because they don’t look constant to me (e.g., between high and low biomass regions).

The discussion has a lot of re-hashing of results and could benefit from being condensed.

P8286: I assume that the presence of empty frustules could be important too in increasing the Si:POC or Si:PON ratio. Are you able to evaluate this with your data?

P8290: I would interesting in seeing a bit more analysis of the C:N ratio. In a recent paper (Martiny et al., 2013, GBC), we show that the C:N ratio is lower in high nutrient regions. Gleaning over your data, it seems that this could perhaps be the case around KP as well. It would also be interesting to see if any elemental ratios evolved over time. I would predict them to drop at A3. Overall, it would be nice to see if these broad predictions hold up in a local area.

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