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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.

Anonymous Referee #2

Received and published: 22 August 2014

Lasbleitz et al. describe the particulate matter and phytoplankton community structure in the natural iron-fertilized Kerguelen region. They present an impressive amount of data from this region which is still of high scientific interest. The paper is well written but the amount of data presented make is sometimes difficult to follow.

I would very much like to see this paper published and only have minor comments.

P 8261 line 16-19: Except for EIFEX, as discussed later. Maybe write here " A major difference from MOST previous artificial. . ."

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P 8262 line 16: I would mention the study by Smetacek et al 2012 in Nature here. Even though there are still considerable uncertainties, this longer term study showed for the first time that at least some parts of the iron induced bloom sank to the deep sea floor.

P 8271 lines 3-6. From your description it sounds like the depth distribution of the chlorophyll concentrations are fairly similar over the transect. I think you should describe more clearly that this is not the case and that elevated chl concentrations only go down to about 80 m at station TNS 2 and down to about 180 m at station TNS 10, possibly due to changes in mixing depth over the transect I guess.

P 8273 line 23-25: Are you sure about this? To me it seems like this BSi maximum is only driven by one outlier at 250m depth at station TEW5 (or are there more datapoints and the dots are just not visible in the figure?). Sometimes Ocean Data View makes these things look much bigger than they are and one has to be careful not to overinterpret it, especially when the trend does not show up in other datasets like Chl and POC in this case. How would you explain higher BSi concentrations than POC concentrations which were obviously under the detection limit at this data point.

P 8274 line 24: It is confusing to talk about “stations” here when really you mean one station visited at different times. Maybe it would be easier for the reader if you would name it station Et1-5 or just add the date (station E visited on the. . .)

P 8280 lines 11-16; P 8282 lines 1-2; P8283 line 18; P 8287 lines 19 and 26; P 8288 line6: Species names should be in italic

General comment about the discussion: I miss cross references to the figures. I would help to mention the respective figure when you discuss e.g. the Si:C ratios.

P 8287 line 4: Change “pourcent” to “percent”

P 8294 line 13: Change “eolian” to “aeolian”

P 8320 Figure 11 Why did you chose these 4 stations, what makes then “typical”?

BGD

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P 8321 Figure 12 Why was there no size fractionation at some stations/times? At least mention this in the figure caption.

P 8324 figure caption figure 15: It should be "< 0.8μm" not "> 0.8μm"

Interactive comment on Biogeosciences Discuss., 11, 8259, 2014.

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