

Interactive comment on “Phytoplanktonic response to contrasted Saharan dust deposition events during mesocosm experiments in LNL environment” by C. Ridame et al.

Anonymous Referee #2

Received and published: 10 March 2014

The authors tried to examine the responses of phytoplankton biomass in terms of Chl-a concentration and primary production to Saharan dust events through the mesocosm experiments conducted as part of the DUNE project. The differences in phytoplankton responses against the dry and wet depositions were rather clear and interesting. A number of companion papers such as Giovagnetti et al. (2013) and Ridame et al. (2013) in the DUNE project were very supportive to this paper, whereas the originality and significance of this paper would become rather weak. Below is my specific comments, mainly in the methodology the authors used, on this manuscript.

P760, L17_18: How did you collect seawater for the measurements of primary production? Did you use a trace metal clean technique?

C266

P760, L27_P761, L1: Please describe the methodology for the determination of total dissolved inorganic carbon (DIC) in seawater in order to calculate the excess value of ^{13}C .

P761, L14_17: This assumption could be invalid if the downward irradiance declined rapidly between 5 and 12.5 m. Please indicate the relative PAR levels (%) at the two layers to the surface.

P762, L17_19: Did you integrate the PP value at 5 m from 0 to 12.5 m assuming a rectangular distribution? Even if Chl-a profiles are uniform within the euphotic layer, as mentioned above, primary productivity can change with depth mainly due to a decrease in downward irradiance. I believe PAR data would be essential to estimate the depth-integrated primary production, especially in the wet deposition experiments where Chl a concentrations increased.

P762, L9 and P762, L15: Do not start a sentence with a numerical character. Two liters and Twenty milliliters would be better, respectively.

P762, L22: Why did you not measure new production using ^{15}N technique? The results of NPdust using the equations have already been published in Ridame et al. (2013). Therefore, I do not think that the section of 2.3 is necessary.

P762, L12: Strickland and Parsons, 1972?

Table 1: This table is completely the same as Table 1 in Ridame et al. (2013). So it should be removed.

Fig. 1: These pictures are not informative for readers. I would recommend the authors delete them.

Fig. 8: How did you make these figures? Please describe the modeling methods of nitrate and DIP in text in detail.