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Interactive comment on "Response of heterotrophic and autotrophic microbial plankton to inorganic and organic inputs along a latitudinal transect in the Atlantic Ocean" by S. Martínez-García et al.

S. Martínez-García et al.

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Response to referee 1

General Comments:

We very much appreciate the comments and suggestions made by reviewer 1. We agree with referee 1 that the paper was too long in its first version. We have substantially reduced the original version by more than 20%. The results section is now C632

considerably shorter and we have reduced the length of the discussion, avoiding all the repetitive or unnecessary statements. The introduction is also much shorter now since we have noticeably reduced the part dedicated to atmospheric inputs. We agree with the referee that the previous version had too much content on atmospheric deposition. The focus of the article is not to simulate atmospheric inputs, however we believe that it is important to justify why it is important to test the differential response of phytoplankton and bacteria to inorganic versus organic nitrogen in surface open ocean waters. Therefore, in the revised version, we only mention the atmospheric deposition as a process which has been shown to introduce organic nitrogen in the upper ocean (up to 30% of the total nitrogen inputs) (Cornell et al 1995, Duce et al 2008 and references therein). As far as we know, this is the first experiment in the oligotrophic Atlantic Ocean looking at the effects of inorganic and organic nitrogen in both autotrophic and heterotrophic compartments.

Specific comments:

1. Page 465. We have reduced page 465 by 75% (. see comment above).

2. Page 469 (and elsewhere) .We agree that it may be hard for readers not used to these abbreviations to follow the text. We have now limited the use of abbreviations trough the text.

3. Page 472-473. We have reduced the "initial conditions" section by more than 50%.

4. Page 475: We have now avoided the use of the subscript RR in the text, and we just explain changes in the microbial variables promoted by the additions.

5. Page 476, line 21. BGE is now defined in the Material and Methods section.

6. Page 478, Section 4.1. We agree with the reviewer that this section did not contribute very much to the focus of the paper, so we have deleted it.

7. Page 480, line 7. The results in this work have already been compared through the text with other nutrient addition experiments (Alonso-Saez et al., 2007; Carlson et al.,

2002; Caron et al., 2000; Davey et al., 2008; Lignell et al., 2003; Mills et al., 2004; Mills et al., 2008; Moore et al., 2006; Moore et al., 2008; Paytan et al., 2009). As far as we know, this is the first addition experiment in oligotrophic waters investigating the effects of jointly added inorganic and organic nutrients on both phytoplankton and bacteria so not all of our results can be compared to previous studies. We have tried to explain similarities and differences between our and other nutrient addition experiments and highlight the valuable information than can be extracted from nutrient addition experiments.

8. Page 483, line 14. We agree with the referee that our results do not allow describing competition between phytoplankton and bacteria, although it could be a possible explanation for the general reduced response of phytoplankton to nutrient additions. We have modified this sentence avoiding speculation about possible competition between phytoplankton and bacteria.

9. We have realized that the most important information from table 2 was already included in the text so we have completed this information in the revised text and we have deleted table 2.

10. We agree that figure 7 may be somehow redundant, so we have deleted it. Accordingly, we have also deleted the section 3.4 'Heterotrophic vs Autotrophic responses' in which this figure was explained in the previous version.

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C634