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**Biogeosciences Discussions**

# *Interactive comment on* "Organic nutrients as sources of N and P to the upper layers of the North Atlantic subtropical gyre along 24.5 N" *by* A. Landolfi et al.

**Anonymous Referee #2**

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The authors present a number of observational and modeling results related to the question of elemental cycling in the oligotrophic part of the North Atlantic. They set out to "assess the potential of DON and DOP to explain the [...] carbon and nitrogen balances", but I found it very difficult to see whether the paper comes anywhere near attaining this goal.

The manuscript has no clear focus and is therefore often difficult to follow. In several places there is a lack of scientific scrutiny and precision, e.g., the analysis rests on the implicit assumption that ammonium is negligible, but this his nowhere stated or demonstrated.



Most importantly, several of the assumptions are likely to be unjustified, e.g., that significant net production of DON and DOP occurs only at the surface and when chlorophyll concentrations exceed 0.1 mg mˆ-3. As oligotrophic regions frequently feature subsurface phytoplankton biomass layers and production, this is a highly questionable assumption.

As a consequence, it is not clear to me what we can learn from this study. The manuscript fails to conclusively answer the question posed in the introduction. The conclusions are either vague, dominated by "appear to be", and "suggest that", or overreach what can be derived from the material.

Finally, submitting a manuscript containing so many (mostly avoidable) typographical errors and other demonstrations of carelessness shows a certain degree of disrespect towards readership and reviewers (Remember: "Why should anyone else care about the manuscript if the authors don't".)

A (probably incomplete) list follows:

page 4002, line 13: western (not wester)

page 4002, line 15: stimulates (not stimulate)

page 4005, line 5: ... we want to (1) assess ... (2) investigate (not want to assess (1) ... and (2) investigate)

page 4005, lines 7 and 15: assess (not asses)

page 4006, line17: particulate matter is considered negligible. Does this refer to "inorganic" species only?

page 4015, line 25: Fig. 10 (not Fig. 9)

page 4017, lines 15/16: Does this refer to Fig. 4?

page 4017, line 27: than (not then)

page 4019, line 24/25: turnover rates have units of 1/time and not time

page 4020, line 1: yielded an average (not yielded a an average)

page 4020, line 3: greater than (not grater then)

page 4020, line 8: allochthonous (not allochtonus)

page 4020, line 18: than (not then)

page 4021, line 7: allochthonous (not allocthonus)

page 4022, line 6: Gulf Stream (not gulf stream)

page 4025, line 8: Gulf Stream (not gulf stream)

I also oppose the use of popular "buzz words" in inappropriate ways: the term "regime shift" (page 2025, line 10) usually refers to a "rapid temporal reorganization of a system from one relatively stable state to another", but not to spatial variations that are interpreted as different dynamical regimes in neighboring regions.

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Interactive comment on Biogeosciences Discuss., 7, 4001, 2010.