

## ***Interactive comment on “Spatial variation in N<sub>2</sub>-fixation rate and diazotroph activity in the Tropical Atlantic” by J. P. Montoya et al.***

**S. Naqvi (Referee)**

naqvi@nio.org

Received and published: 15 December 2006

This is a well-written article in which Montoya, Voss and Capone investigate relative contributions of Trichodesmium and other smaller organisms to diazotrophy in the tropical Atlantic Ocean using several sets of previously published and new data. The principal conclusion that there exist significant and systematic differences between the eastern and western regions with Trichodesmium dominating diazotrophy in the west and the other unidentified small organisms becoming more important in the east, with the overall nitrogen fixation rate being more or less invariable zonally, is well supported by the observations. And although the exact cause of the observed differences has not been pinpointed, it is still an important finding, which hopefully will stimulate further research on this aspect of nitrogen fixation in the region. The authors are quite

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

conscious about the potential limitations of their analysis (e.g. pooling together measurements made in different seasons and years, and following different methods) and adequately address these concerns. I offer below just a few very minor comments for authors' consideration:

Page 1740, line 21: Unless "which" refers to "Trichodesmium", "occurs" may have to be replaced by "occur".

Page 1742, lines 2-4: You do not have to cite Voss et al. twice in a sentence (i.e. how about changing to "Voss et al. (2004) have used  $\bar{E}$  North Atlantic".

Page 1742, line 7: Delete "Voss et al. (2004)"?

Page 1744, line 2: "W" in "Western" to be in lower case?

Page 1742, lines 9-12: The zones of highest  $N^*$  in Fig. 4(b) could be seen in Fig. 4(a) as well; it is just that in the former case the values are higher due to larger depth integration? Although it is not directly relevant to the paper, does it mean that a larger portion of material produced by  $N_2$ -fixers gets degraded at relatively greater depths ( $>300$  m)?

Page 1748, lines 5-6: "with an eastward increase " instead of "with an increase to the eastward"?

Page 1750, lines 10-12: The lower integrated  $N^*$  just off the upwelling coast off Mauritania due to sedimentary denitrification?

Page 1758, Fig. 2(b): What do the open circles denote?

Page 1760, Fig. 4: The integrated  $N^*$  unit does not seem to be right (I think it should be  $\text{mol/m}^2$ ).

---

Interactive comment on Biogeosciences Discuss., 3, 1739, 2006.

**BGD**

3, S897–S898, 2006

Interactive  
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper