

## ***Interactive comment on* “Impact of the marine atmospheric boundary layer on VSLs abundances in the eastern tropical and subtropical North Atlantic Ocean” by S. Fuhlbrügge et al.**

### **Anonymous Referee #2**

Received and published: 25 January 2013

### Summary

This paper presents some important measurements of VSLs from the DRIVE ship campaign and an extensive analysis of the data, including back trajectory modeling and calculating correlations of atmospheric VSLs abundances/fluxes to various meteorological parameters. The primary result is the high correlation observed between VSLs and marine boundary layer height. This paper contains some interesting data and analysis and should be published, however I feel that significant revisions are required to present the results in a more focused way.

### General Comments

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I believe this paper can be shortened and more focused in general. For example, there are 8 pages of preliminary information before results directly relevant to the title of the paper are discussed (first sentence of Section 3.3), which seems excessive.

A little more information could be given in the abstract. Only the relationship of VSLs with the MABL is mentioned, whereas correlations with various different meteorological parameters have been calculated. It would be useful to add a sentence mentioning other parameters investigated, and then say that the strongest correlation seen was with the MABL. In addition, for the same reason it might be better to generalize the title.

The ‘Meteorology and MABL height’ section could be shortened as it contains detail that is not directly relevant to the conclusions of the paper.

Sections 3.1 to 3.2.1: Much of the detail described can be determined from looking at the Figures. This section should be shortened to just a summary of the main points.

Sections 3.3 and 3.4: These sections present some useful data and important results, however, I feel that these sections could be written in a more focused way, highlighting the most significant results to the reader (more detail can be obtained from the tables and Figures).

I agree with Reviewer 1, that it would be interesting to compare the correlation of VSLs fluxes with VSLs abundances, to the correlation of the MABL with VSLs abundances. Which is more important?

#### Technical Corrections

P31207, line 5: I believe VSLs is already plural, change ‘VSLs’ to ‘VSLs.’

P31207, lines 7-8: change ‘tropospheric oxidation processes can be altered’ to ‘they can alter tropospheric oxidation processes’

P31207, line 9: change ‘lifetime’ to ‘lifetimes’

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P31208, line 13: change 'die' to 'the'

Section 2: the subheadings lack numbering.

P31209, line 6: change to 'hourly VLSL measurements were performed at six 24 h stations during leg P339/2'

P31209, lines 9-10: change to 'Mauritanian coast as well as the nutrient poor'

P31209, line 13: change to 'an additional 20 atmospheric samples'

P31209, line 25: change '4:00' to '4'.

P31223, line 10: change to 'Hourly VLSL measurements were conducted at six 24 h stations in these areas'

Table 3: Last line of caption – there are no bold coefficients in my copy.

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Interactive comment on Atmos. Chem. Phys. Discuss., 12, 31205, 2012.

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