

## ***Interactive comment on* “Sources and sinks of acetone, methanol, and acetaldehyde in North Atlantic air” by A. C. Lewis et al.**

**A. C. Lewis et al.**

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Title: Sources and sinks of acetone, methanol and acetaldehyde in North Atlantic air

Authors: J. Hopkins, A. Lewis, L. Carpenter, J. Stanton, K. Read, and M. Pilling

Response to referees comments:

The authors are thankful to the referee and have taken into account the comments raised.

- 1) As suggested we have included the word “marine” in the title.
- 2) We have included the relevant references omitted from the first submission. We

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have also included data from Williams et al. (2004) in table 1 of the manuscript, however we have not included data from Singh et al. (2001) since this data was acquired from airborne measurements and are therefore not directly comparable with the data presented in table 1.

3) The authors have included references to relevant work relating to the role of the oceans in the global budgets of oxygenates.

4) Further experimental detail has now been included in the manuscript.

5) We have corrected the reference to figure 2.

6) The authors have clarified the term “dominate” in relation to the reactivity and mass of OVOCs in the atmosphere.

7) The typing error has been corrected.

8) The authors have now included in the manuscript the possibility of interferences in the acetaldehyde measurements and the effect that this may have in reducing the apparent variability in the atmosphere. However the low concentration of ozone (average of 29 ppbV) witnessed at the Mace Head site during the NAMBLEX campaign leads the authors to suggest that any effect of ozone + artefact reactions would be minimal. Also, ozone levels regularly reached values below 10 ppbV and in some cases were up to 48 ppbV, if the ozone reactions were of key importance there would likely be a correlation between ozone and acetaldehyde concentration and/or variability, there appeared to be no relationship between these two compounds.

9) Acetaldehyde levels:

The model makes no attempt to recreate atmospheric concentrations of the oxygenated species, it is used merely to investigate the important precursors to their secondary production in the atmosphere. The initial concentrations of the oxygenated species was set to zero in the model, this is clearly not an accurate reflection of the starting conditions.

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Reaction of ozone with sampling artefacts in the inlet to produce acetaldehyde has been considered by the authors as a possibility for the high levels of acetaldehyde. - See point 8). Further investigations into the effects of ozone levels on acetaldehyde production within the system are on-going at York.

10) Two coincident measurements of formaldehyde were made during the NAMBLEX campaign, however substantial disagreement remains between the two instruments used. Discussion of the origins of these differences are on-going and for this reason the authors decided to ignore any comparison with the formaldehyde measurements.

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Interactive comment on Atmos. Chem. Phys. Discuss., 5, 1285, 2005.

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