Atmos. Chem. Phys. Discuss., 5, S4757–S4760, 2005
www.atmos-chem-phys.org/acpd/5/S4757/
European Geosciences Union

Atmospheric Chemistry and Physics Discussions

Interactive comment on "The North Atlantic Marine Boundary Layer Experiment (NAMBLEX). Overview of the campaign held at Mace Head, Ireland, in summer 2002" *by* D. E. Heard et al.

Anonymous Referee #2

Received and published: 27 December 2005

Review of Atmos. Chem. Phys. Manuscript (# acpd-5-12117) "The North Atlantic Marine Boundary Layer Experiment (NAMBLEX). Overview of the Campaign held at Mace Head, Ireland, in summer 2002" by Heard et al.

General comments This manuscript presents an overview of the field measurements during the NAMBLEX campaign at a marine site at Mace Head, Ireland. Field studies in relatively clean environments like this one is important to understand the atmospheric oxidation chemistry and exam fast photochemistry. Following up a few previous field studies at the same site, this study provides a comprehensive measurement suite of

important chemical species and physical parameter to better understand some question in previous studies such as the chemical links between HOx-NOx-and halogen family (XOx), nighttime oxidation, and new particle formation. On the whole the paper is well written, reports important results, and draws reasonable conclusions. I recommend publication in ACP with some minor changes and ask the authors to consider the following comments, for correctness and clarity. Also the paper is kind of long and the authors may consider making it more concise.

Special Comments 1) P12180, L5, “(RO2)” may be changed to “(HO2 and RO2)”.

2) P12186, L11, the title of Section 2 may be change to such as “Description of site, measurements and model activities”, because besides the site and meteorological measurements, measured chemical species and modeling activities are also briefly described in this section.

3) P12139, L1, “...from 3m up the 23mĚ”, is this the height above the ground or above the sea level? Is this height comparable to the heights of other two O3 sampling inlets?

4) P12139, L12, O3 levels in August 1990-1992 is used to be compared to the O3 level in this study. Are more recent data, e.g., around 2000, available which may be more comparable since there might be some ozone trend in the last 10-15 years?

5) P12193, L13, “The agreement between the instruments is good.” This statement is too general and not very necessary because the detailed comparison been described in the following few paragraphs. It may be changed to like “The agreement between the instruments is describe in the following.” Also 20% difference seems large to me because gas species like ozone are easy to be measured. Because Leeds-O3 was used as a constraint in the model to calculated radical concentrations (I assume this is because both OH/HOx and O3 were measured at the same point), the disagreement among the three O3 measurements may also introduce some model uncertainty.

6) P12194, L23, in Equation 7, include units for CO and C2H2 (ppbv?).

ACPD

5, S4757–S4760, 2005

7) P12195, L10, add a reference for the H2 sink mainly by soil uptake.

8) P12195, in Equation 8 and 9, also add units for CO, CH4 and C3H8.

9) P12197, L4, specify how much the offset was.

10) P12197, at the end of Section 3.6, include an overall intercomparison of peroxide measurements.

11) P12198, L3, was CHCl3 also measured by the Univ. of York, or here it should be CHBr3 rather than CHCl3?

12) P12199, L22, how efficient for the nylon tube to remove HNO3?

13) P12203, L12, please cite the reference, Hard et al., 1984 for their pioneer work on FAGE technique.

14) P12234, in Fig. 4, explain “C” (cyclonic?) and “AC” (anticyclonic?) at their first appearance.

15) P12237, in Fig. 7, units are missing for O3. Also add 1:1 line to show the agreement.

16) P12239, in Fig. 9, there is little obvious variation trend of H2. This figure could be removed by mentioning some features in the text. P12241, in Fig. 11, units are missing for the y axes. P12243, in Fig. 13, please mention what species are included in the calculated NOy (NO, NO2, HNO3, and PAN?).

P12246, in Fig. 16, use obviously different colors in figure (b).

P12247, in Fig. 17, tide height is plotted in Fig. 17. Is there a significant link between tide height and CN?

P12249-12250, in Fig. 19 and 20, titles and axis labels are not very clear in all figures. Plot the figures larger with a higher resolution.

ACPD

5, S4757–S4760, 2005

Interactive Comment

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 12177, 2005.

ACPD

5, S4757–S4760, 2005

Interactive Comment

EGU