

Home

Online Library ACP

- ▣ Recent Final Revised Papers
- ▣ [Volumes and Issues](#)
- ▣ Special Issues
- ▣ Library Search
- ▣ Title and Author Search

Online Library ACPD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper

Impact  
Factor  
4.865

ISI  
indexed



▣ [Volumes and Issues](#) ▣ [Contents of Issue 9](#) ▣ [Special Issue](#)

Atmos. Chem. Phys., 6, 2711-2726, 2006

[www.atmos-chem-phys.net/6/2711/2006/](http://www.atmos-chem-phys.net/6/2711/2006/)

© Author(s) 2006. This work is licensed under a Creative Commons License.

## Ambient formaldehyde measurements made at a remote marine boundary layer site during the NAMBLEX campaign – a comparison of data from chromatographic and modified Hantzsch techniques

T. J. Still<sup>1</sup>, S. Al-Haider<sup>1</sup>, P. W. Seakins<sup>1</sup>, R. Sommariva<sup>1</sup>, J. C. Stanton<sup>1</sup>, G. Mills<sup>2</sup>, and S. A. Penkett<sup>2</sup>

<sup>1</sup>School of Chemistry, University of Leeds, Leeds, LS2 9JT, UK

<sup>2</sup>School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, UK

**Abstract.** Ambient formaldehyde concentrations are reported from the North Atlantic Marine Boundary Layer Experiment (NAMBLEX) campaign at Mace Head on the west coast of Eire during August 2002. The results from two techniques, using direct determination via gas chromatography and the Hantzsch technique, show similar trends but a significant offset in concentrations. For westerly air flows characteristic of the marine boundary layer, formaldehyde concentrations from the gas chromatographic and Hantzsch technique ranged from 0.78–1.15 ppb and 0.13–0.43 ppb, respectively. Possible reasons for the discrepancy have been investigated and are discussed, however, no satisfactory explanation has yet been found. In a subsequent laboratory intercomparison the two techniques were in good agreement. The observed concentrations have been compared with previous formaldehyde measurements in the North Atlantic marine boundary layer and with other measurements from the NAMBLEX campaign. The measurements from the Hantzsch technique and the GC results lie at the lower and upper ends respectively of previous measurements. In contrast to some previous measurements, both techniques show distinct diurnal profiles with day maxima and with an amplitude of approximately 0.15 ppb. Strong correlations were observed with ethanal concentrations measured during NAMBLEX and the ratio of ethanal to formaldehyde determined by the gas chromatographic technique is in good agreement with previous measurements. Some simple box modelling has been undertaken to investigate possible sources of formaldehyde. Such models are not able to predict absolute formaldehyde concentrations as they do not include transport processes, but the results show that oxygenated VOCs such as ethanal and methanol are very significant sources of formaldehyde in the air masses reaching Mace Head.

▣ [Final Revised Paper](#) (PDF, 2198 KB) ▣ [Discussion Paper](#) (ACPD)

Citation: Still, T. J., Al-Haider, S., Seakins, P. W., Sommariva, R., Stanton, J. C., Mills, G., and Penkett, S. A.: Ambient formaldehyde measurements made at a remote marine boundary layer site during the NAMBLEX campaign – a comparison of data from chromatographic and modified Hantzsch techniques, *Atmos. Chem. Phys.*, 6, 2711-2726, 2006. ▣ [Bibtex](#) ▣ [EndNote](#) ▣ [Reference Manager](#)

Search ACP

Library Search

Author Search

News

- ▣ [Sister Journals AMT & GMD](#)
- ▣ [Financial Support for Authors](#)
- ▣ [Journal Impact Factor](#)
- ▣ [Public Relations & Background Information](#)

Recent Papers

01 | ACPD, 12 Jan 2009:  
Mobile mini-DOAS  
measurement of the  
emission of NO<sub>2</sub> and HCHO  
from Mexico City

02 | ACP, 12 Jan 2009:  
Spatial distribution of Δ<sup>14</sup>CO<sub>2</sub>  
across Eurasia:  
measurements from the  
TROICA-8 expedition

03 | ACP, 12 Jan 2009:  
Cloud's Center of Gravity – a  
compact approach to analyze  
convective cloud  
development

