

Interactive comment on “Intercomparison of four different in-situ techniques for ambient formaldehyde measurements in urban air” by C. Hak et al.

Anonymous Referee #1

Received and published: 7 June 2005

Referee Comment

MS-Nr: acpd-2005-0066 Title: Intercomparison of four different in-situ techniques for ambient formaldehyde measurements in urban air Autor(s): C. Hak, and FORMAT intercomparison team

1. General comments

From my point of view this paper represents an interesting approach in the evaluation of state-of-the-art ambient formaldehyde measuring techniques. It is shown as a main

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

result of this study that the consistency between the Hantzsch method and a spectroscopic method (i. e. DOAS) was considerably better than during previous campaigns. Moreover, a quite good consistency within a few percent was found for the two spectroscopic techniques (DOAS, FTIR). On the other hand, the authors observed quite good correlations but substantial offsets in the results of the different Hantzsch monitors indicating some remaining problems in the operation of the Hantzsch systems (i. e. differences in titration methods, determining of the formaldehyde-free zero signal). Therefore, the results of this intercomparison may contribute to lower the effects of these factors in further formaldehyde studies. The organization of the paper and the presentation of the results are good and the earlier work is adequately recognized from the authors. The paper is clearly written and the length of the paper is adequate. As a whole, from my point of view the paper is acceptable with only some minor revisions (see specific comments).

2. Specific comments Page 2910: The authors pointed out that zero adjustment was performed between once per day (IFU) and 6 times per day (BUW). It would be interesting to know the effect of changes in zero signals (and that of the calibration signals) on the results of the Hantzsch instruments. It is therefore recommended to include the change in “response factors ” as function of time in the paper.

Page 2911: It is reported that the ozone scrubber is omitted for technical reasons for the DNPH-cartridge sampling in the morning and in the evening hours, respectively. The authors conclude that there is no problem with ozone on the DNPH formaldehyde results due to the lack of additional peaks in the HPLC-chromatograms. Can co-elution of the signals be ruled out from concurrent sampling with and without ozone scrubber?

Page 2926: The authors reported an excellent correlation between the Hantzsch instruments of BUW and PSI but an offset of around 20 % for unknown reasons. They argued problems dealing with the “zeroing” of the monitors. This hypothesis could have easily been tested using the build-in formaldehyde permeation source of the Hantzsch monitors (for example by comparing the zero signals of synth. air and of scrubbed

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)

synth. air + formaldehyde from the permeation source). It is therefore recommended to include tests of proper function of the formaldehyde scrubbers as part of the regular operation procedures of the Hantzsch monitors.

3. Technical corrections

Table 1: Please shift the [min] from column: Precision to column: Time res.

Fig. 2: The different time series listed in Fig. 2d are difficult to distinguish. It is recommended to enlarge Fig. 2d by a factor of two and to use all the available width (as indicated by the width of the figure caption) for 2 a to 2c.

Fig. 6: Please omit the numbers in Fig. 6. There is no link in the figure caption nor in the text.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 2897, 2005.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper