Atmos. Chem. Phys. Discuss., 4, S2940–S2942, 2004
www.atmos-chem-phys.org/acpd/4/S2940/
European Geosciences Union

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Oxygenated compounds in aged biomass burning plumes over the Eastern Mediterranean: evidence for strong secondary production of methanol and acetone" *by* R. Holzinger et al.

R. Holzinger et al.

Received and published: 13 December 2004

We highly appreciate the insightful and thorough comments provided by referee #1. Below the points raised are answered in order, and we will adapt the final version of the paper accordingly.

1) We will carefully review and clarify the section explaining the calculation of the NEMRs. In theory, when a biomass burning plume is crossed, the NEMRs and slopes of linear regressions of VOCs with a biomass burning tracer are equivalent methods to obtain the relative enhancement ratio of a compound. We have calculated the en-

hancement ratio as suggested by the referee by means of an orthogonal distance regression; however, we decided to stick with the simpler NEMR method the results of which were less scattered and therefore more reliable.

2) We agree that including more results from other studies will be a useful extension to our paper. Therefore we'll expand our Table 2 to include values published by Jost et al 2003, Singh et al 2004, and Mauzerall et al 1998.

Specific remarks:

- the atmospheric lifetime of MVE is much shorter than the lifetime of acetone. Therefore we do not expect much MVE in aged plumes like the ones encountered over the Eastern Mediterranean.

- Page 6325: integration time was 2, 5, 2, and 5 seconds for methanol, acetonitrile, acetone, and PAN, respectively. One cycle was completed in ˜20 seconds.

- We'll move the sentence as suggested.

- Background values were VMRs just before or after a biomass burning plume was crossed. So, each plume had an individual background that was subtracted from in-plume values. The average NEMR was calculated as geometric mean of the individual NEMRs.

- For clarity we'll keep Table 1 as is; NEMRs based on CO are presented in Table 2.

- OH measurements were made at the ground site in Finokalia, Crete, which is a remote measurement platform with little local influence. High OH concentrations have been measured over the whole period in air masses with different origins and different levels of pollution (see Berresheim et al 2003, Salisbury et al 2003). Consequently, we consider the OH measurements representative for the region and a loss of CO of 24% due to chemistry has to be assumed. Seeing that, we do not consider statements made in the abstract and the conclusion as too strong.

ACPD

4, S2940–S2942, 2004

We also appreciate several technical comments which will help us to improve the final version of the manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 6321, 2004.