

Interactive comment on “Arctic smoke – record high air pollution levels in the European Arctic due to agricultural fires in Eastern Europe” by A. Stohl et al.

A. Stohl et al.

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We thank the reviewer for her/his positive comments on our paper!

We repeat the reviewer's statements below and comment on them:

The title should be changed so that the year of the episodes is mentioned. Since the analysis only covers 2006 this could be reflected in the title.

We will add "in spring 2006" to the title.

In section 4 where the BB emissions are discussed it is not clear if the crude attempt to account for clouds is actually applied in the final estimation of the emissions (line 5-9, p. 9664). This should be stated more clearly and if it is not used please give an argu-

ment why. When looking at Fig. 3 it seems like the agreement with the measurements of CO would be higher if the correction for clouds was used.

This is a good point and we agree that we will need to make this more clear. In Figure 3, the correction was not applied, since we felt it is more fair to the reader to show the "raw" number of detections and also the dip in the number of detections due to the cloud effect. For all subsequent calculations and particularly the FLEXPART simulations, the corrected estimates were used. A corresponding sentence will be added to the manuscript text.

p. 9664, line 28, insert "the" before equation

This will be done.

p. 9676, line 14, delete "large" after large

This will be done.

In would be easier to read the conclusion (also for people who have not read the whole paper) if terms like BB, FFC, EBC etc. were explained here also.

This is a good suggestion and we will do so.

Fig. 6: It is very hard to read the numbers in these figures.

The figure was produced using ECMWF's on-line plotting tools and we have limited influence on the appearance of the plot. The plot is very small in the ACPD layout but we expect it will be larger in the final ACP version. Since the numbers are originally sharp and clear (you can read them well after zooming into the figure in the online version), this will hopefully result in readable numbers. But we will revisit this issue and will see whether we can increase the size of the numbers.

Fig 10: It should be mentioned in the text (page 9671) that the scale on the time series plot differs between the modeled and measured CO.

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The scale is actually the same (both cover a range of 120 ppb) but there is indeed an offset between the two, since the model does not simulate the CO background. We will add a note to the figure caption.

As far as I can see there are two Friedli et al., 2003 references. Maybe it should be 2003a and 2003b?

Thanks for spotting this. It will be corrected as suggested.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 9655, 2006.

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