

Interactive comment on “Weekly cycle of NO₂ by GOME measurements: A signature of anthropogenic sources” by S. Beirle et al.

S. Beirle et al.

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We appreciate H. Nuess constructive comments and some helpful oral discussion very much. The major topics of the reviews (error analysis, seasonal dependency and lifetime estimation) are addressed in our AC General remarks.

Reply concerning specific aspects:

Biogenic source regions show no weekly cycle. E.g. for Central Africa (Congo), day to day variations of NO₂ VCD are below 10%, reflecting the statistical variance. We find no indication for any kind of weekly cycle for regions without industrial activity.

Lifetime estimation

We make an assumption about NO₂ emissions following the data by Wickert (2001). The plot by Wickert (2001), p.71, shows the weekly cycle of NO_x emissions, separated

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for transport and heating/industry. Transport and heating/industry emissions are approximately equal, as well on weekdays as on Sundays, so also the relative reduction of both sources is of the same size.

Role of transport See general remarks

Figures 3 and 5

The scale of both figures is logarithmic. This was chosen since we concentrate on relative changes. Also the error bar that reflects the maximum relative error can be shifted up and down without changing its length. The values are normalized to the median (found by arranging the values in order and then selecting the one in the middle). This was done in order to avoid a bias by the Sunday minimum: The mean of all days would be shifted from the normal weekday level towards the lower Sunday level. That means, the weekdays normalized to the mean would not be unity, but higher. The revised paper clarifies and reasons the choice of the scale and the normalization.

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 3451, 2003.

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