

Interactive comment on “Model simulations and aircraft measurements of vertical, seasonal and latitudinal O₃ and CO distributions over Europe” by H. Fischer et al.

Anonymous Referee #1

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This paper presents a nice analysis of the CO and O₃ measurements during SPURT using a chemical transport model, MATCH. The contributions of different sources to the observed CO distributions are determined through the ‘tagging’ of the model emissions. While results from this analysis are similar to a previous study of the CO budget over Europe, this work used a different model and makes use of a new dataset, so I feel it worth publishing.

Specific comments

p.9070: Were the contributions of chemical production from CH₄ and VOCs ever pre-

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sented in the paper? If not, there is no need to go into the explanation of the inaccuracies of the individual terms. If so, explain how the split is determined.

p.9071: A number of published papers have discussed the problem of CTMs using assimilated meteorology having too strong stratospheric ozone flux. van Noije et al., JGR, 2004 includes a nice summary of previous discussions. It would be nice to include a reference or 2 here.

Figure 4: Instead of having 12 pie charts, the same information could be shown in 3 contour-type plots of contribution versus time (season or month), one for each latitude bin. This might show more clearly how the different terms vary with season.

Technical comments

p.9068, l4: between -> on l6: don't need 'respectively'

p.9071, l2: the comment about scale changes could be moved to the figure caption.

p.9074, l7: CO increases with latitude because of its longer lifetime when irradiance is lower (not shorter/higher).

p.9074, l15: deconvoluted -> deconvolved (or separated)

Table 2: There seems to be a typo for Fall, Low lats, Obs.

Figure 2: It would be helpful to give the latitude ranges that go with Low, Mid and High in the figure caption.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 9065, 2005.

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