

Author comment

We would like to point out that we accidentally down-scaled all CO fluxes in the original version of the revised manuscript by 37% (1-28/44). We have therefore repeated all calculations since this enhancement of CO may potentially improve the tracer CO at all sites investigated.

We indeed find that if we include measurement uncertainties, CO now becomes a better tracer, since the variation of non-fuel CO contributions of ± 15 ppb correspond to a smaller $\text{CO}_{2\text{F}}$ variation than before. The reason is that the ratio $\text{CO}/\text{CO}_{2\text{F}}$, which needs to be divided to obtain $\text{CO}_{2\text{F}}$, has increased. This makes CO a more promising tracer. Now, at rural and urban sites (Gartow and Heidelberg), using CO as tracer shows a similar precision as when using $\delta^{13}\text{C}(\text{CO}_2)$. Before, it was slightly worse than $\delta^{13}\text{C}(\text{CO}_2)$ in terms of precision. At polluted sites, $\delta^{13}\text{C}(\text{CO}_2)$ is still more promising due to the large heterogeneity of emissions in the catchment area of polluted sites with respect to their $\text{CO}/\text{CO}_{2\text{F}}$ ratio.

Further, we would like to remark that we have rerun the STILT model and recalculated the footprints. Also, we re-calculated all fuel CO_2 estimates based on the different tracers. Since we have applied a random noise to all parameters, the absolute numbers (e.g. given in Fig 5-7 or in Tab 4) might change slightly from model run to model run, but the general result is the same as in the original version of the manuscript and does not change the conclusion.