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Supplement of

Measurement report: 30 years of BTEX monitoring at a suburban site in Switzerland supported by additional urban VOC observations

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Table S1. VOCs measured at the Zurich site with the GC-FID in 2005, 2015, 2023 and 2024

Compound	VOC class
ethanol	oxygenated
methanol	
propanone	
ethanal	
propanols	
ethylacetate	
butanone	
acetonitrile	
MTBE	
ethane	alkane
propane	
n-butane	
2-methylbutane	
2-methylpropane	
isohexanes	
n-pentane	
isoheptanes	
n-hexane	
ethene	alkene
propene	
butenes	
pentenes	
isoprene	
1-3-butadiene	
ethyne	alkyne
benzene	aromatic
toluene	
ethylbenzene	
m-p-xylene	
o-xylene	
limonene	terpene
a-pinene	

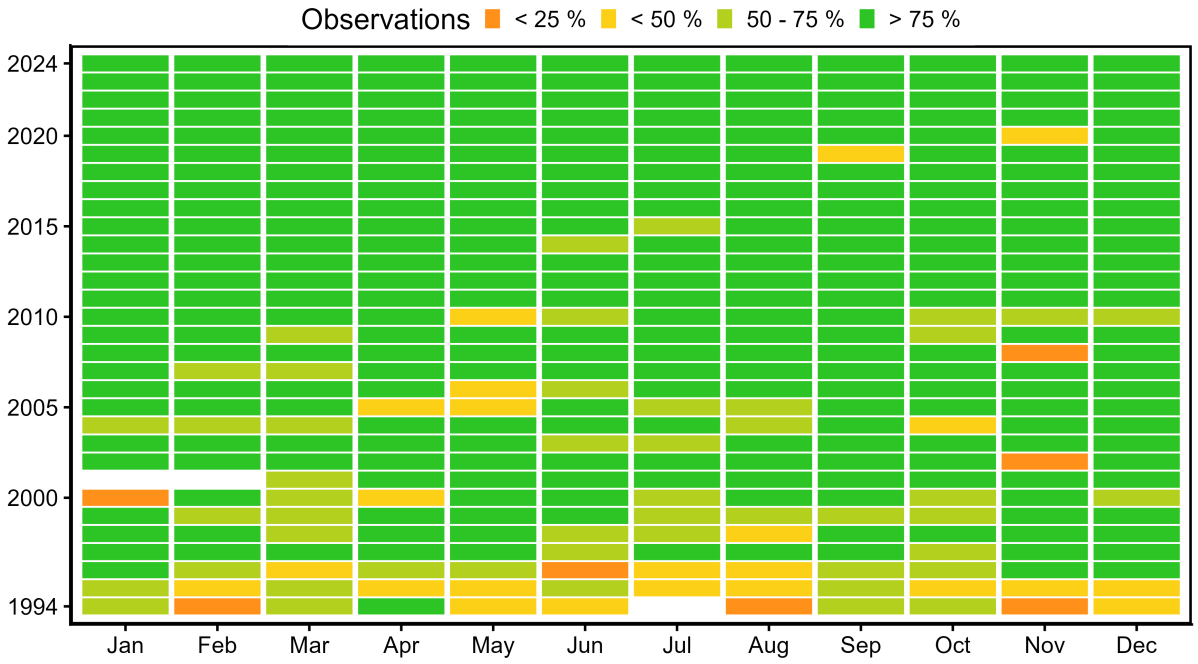


Figure S1. Monthly coverage of BTEX observations in DUE with the 1-h resolution aggregated dataset from 1994 to 2024. A monthly data coverage of 100 % represents at least 648 observations taking into account routine instrument maintenance and calibrations. Missing data are represented by a white square.

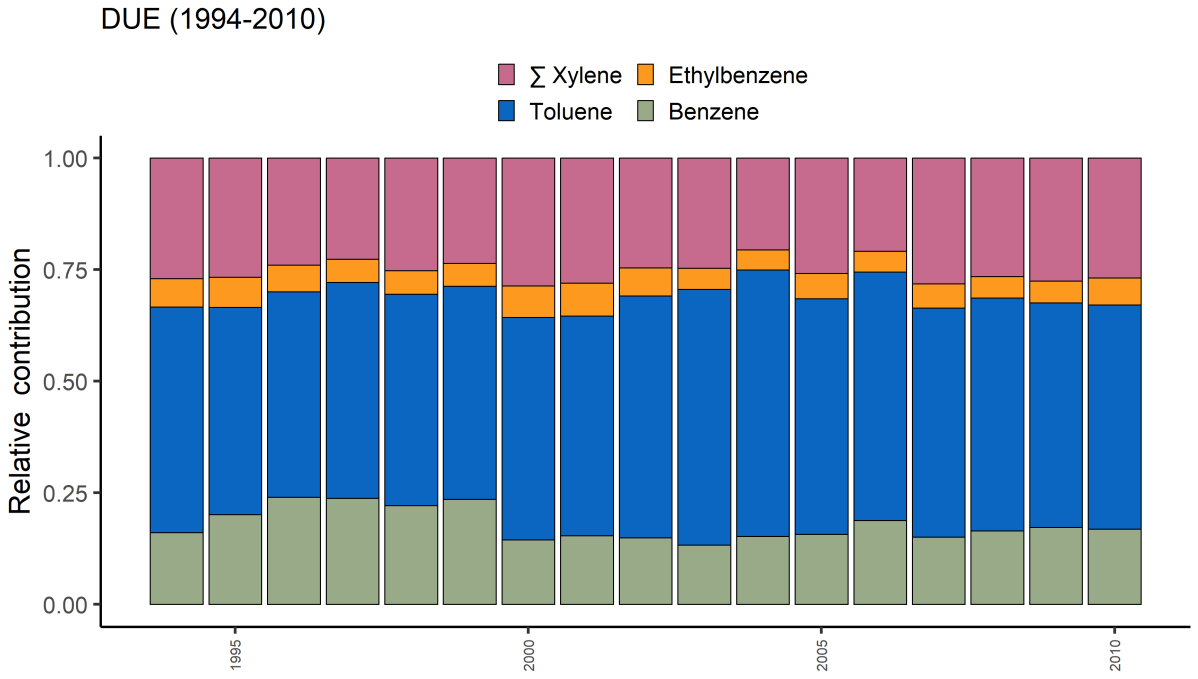


Figure S2. Yearly relative average contribution of each BTEX compound to the yearly average total BTEX concentrations from 1994 to 2010 at DUE. On average, benzene and toluene contributed 66.2 ± 3.2 %, xylene 28.1 ± 2.8 % and ethylbenzene 5.7 ± 0.4 % to the total BTEX concentration.

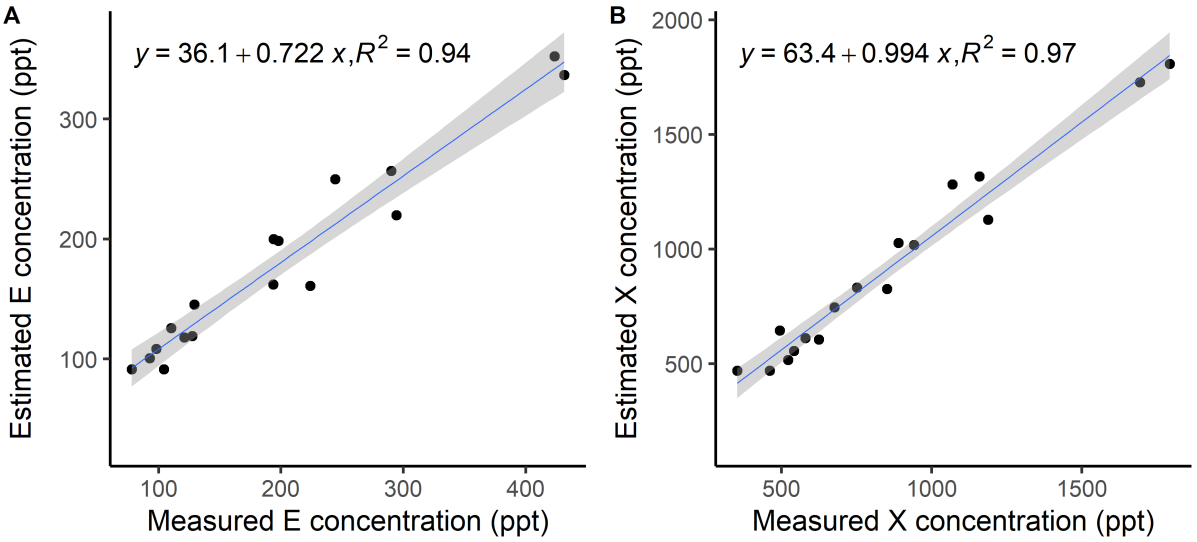
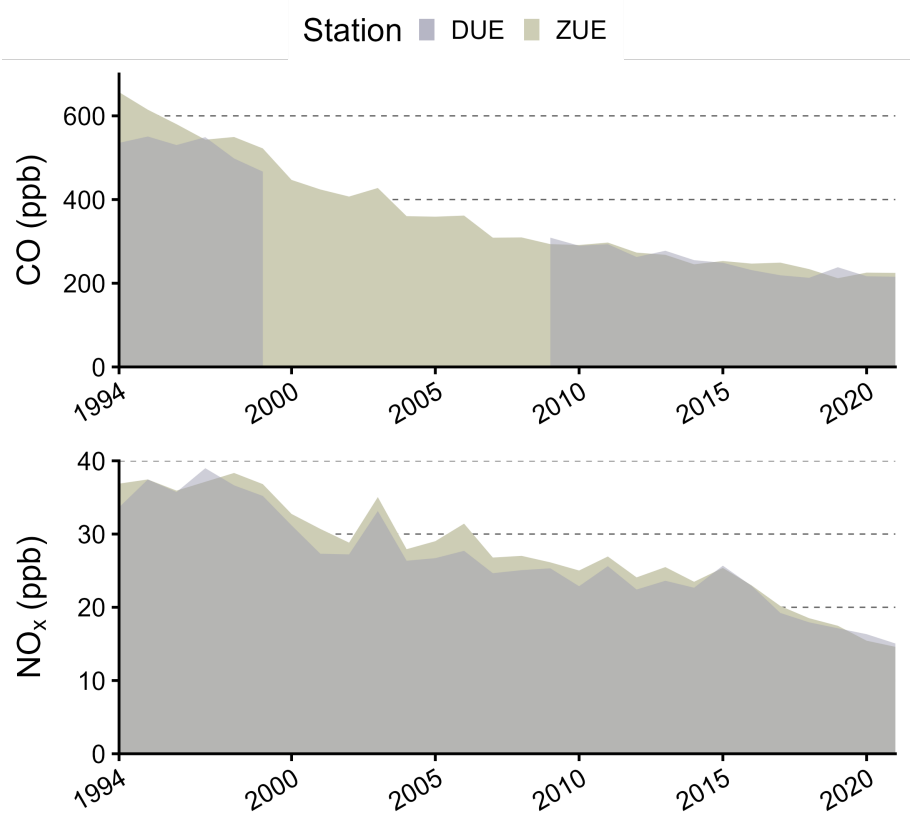


Figure S3. Yearly average comparison between estimated concentration from the relative contribution to total BTEX and measured concentration for ethylbenzene (A) and xylene (B) at DUE between 1994 and 2010.



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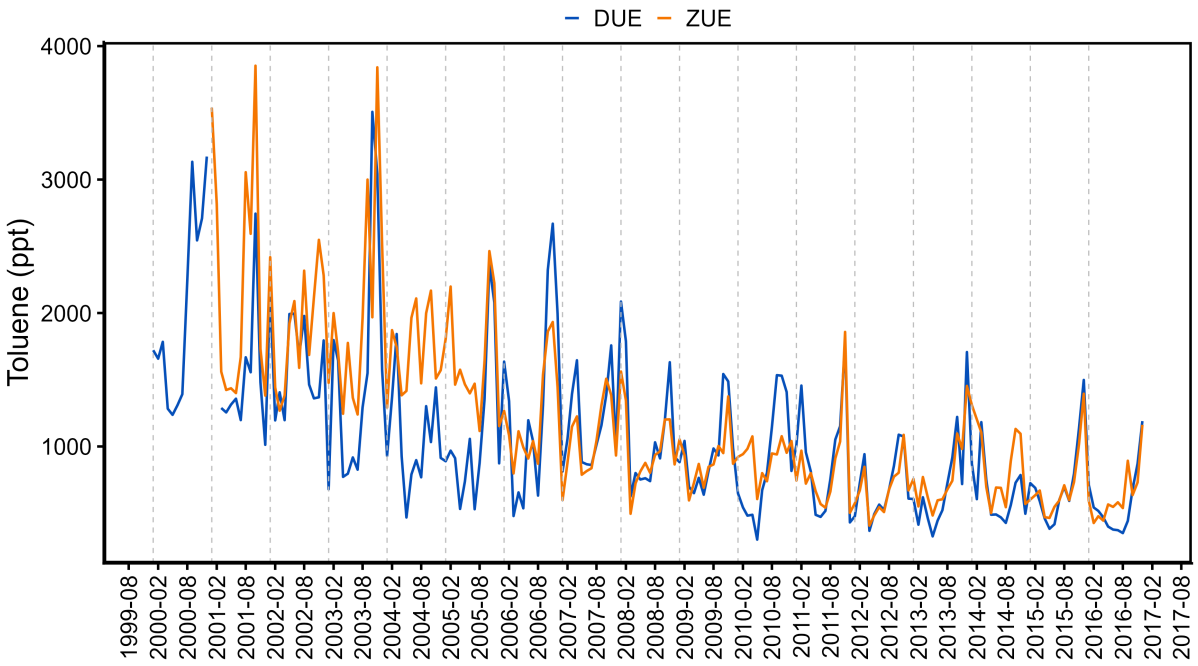


Figure S5. Monthly average toluene concentration in DUE (blue) and in ZUE (orange) from 2000 to 2016.

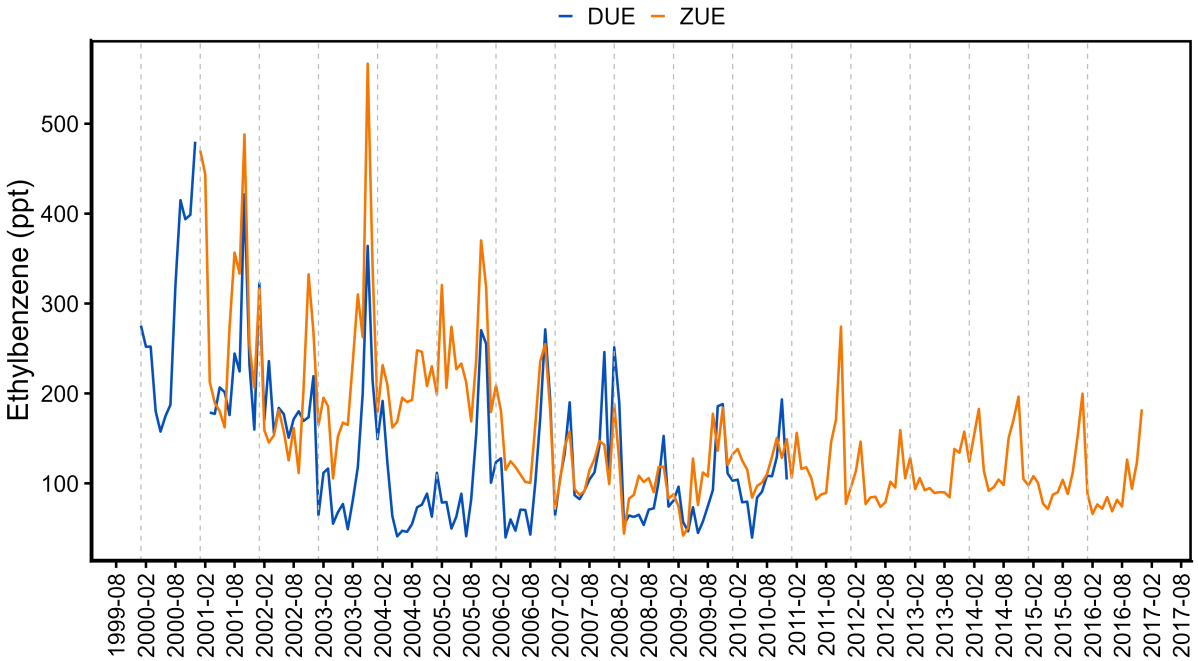
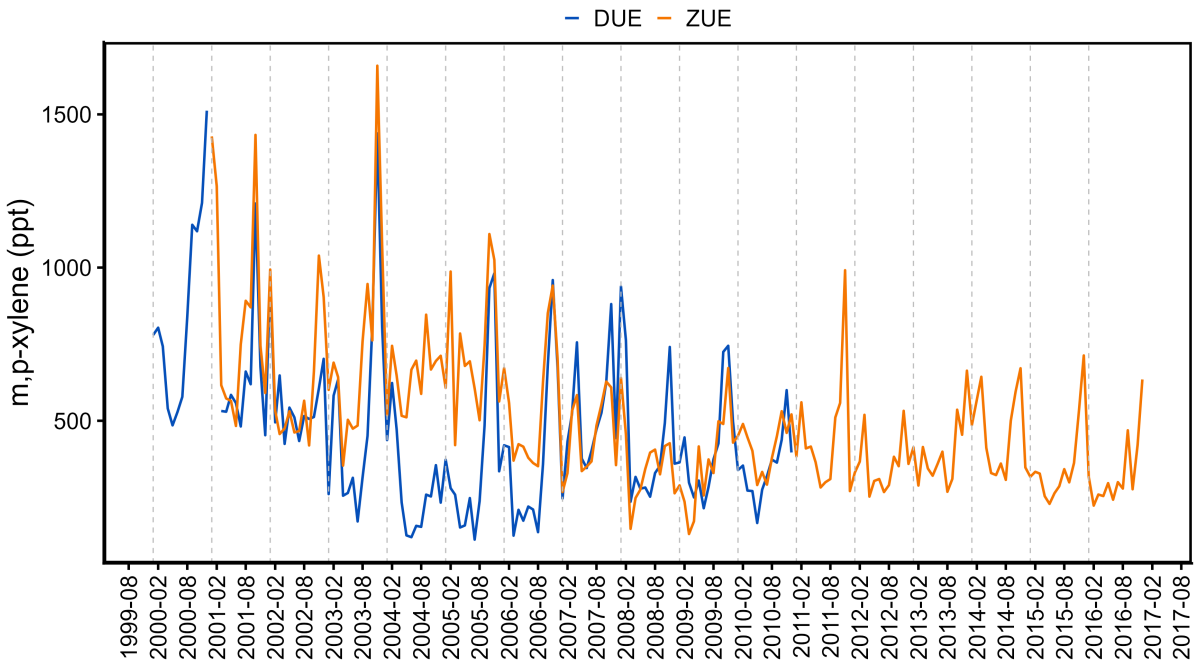


Figure S6. Monthly average ethylbenzene concentration in DUE (blue) and in ZUE (orange) from 2000 to 2016.



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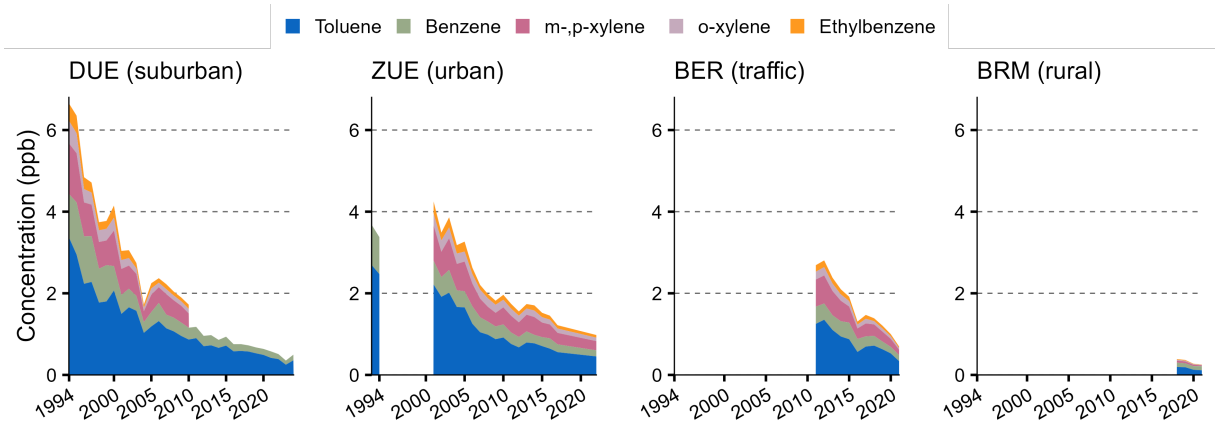

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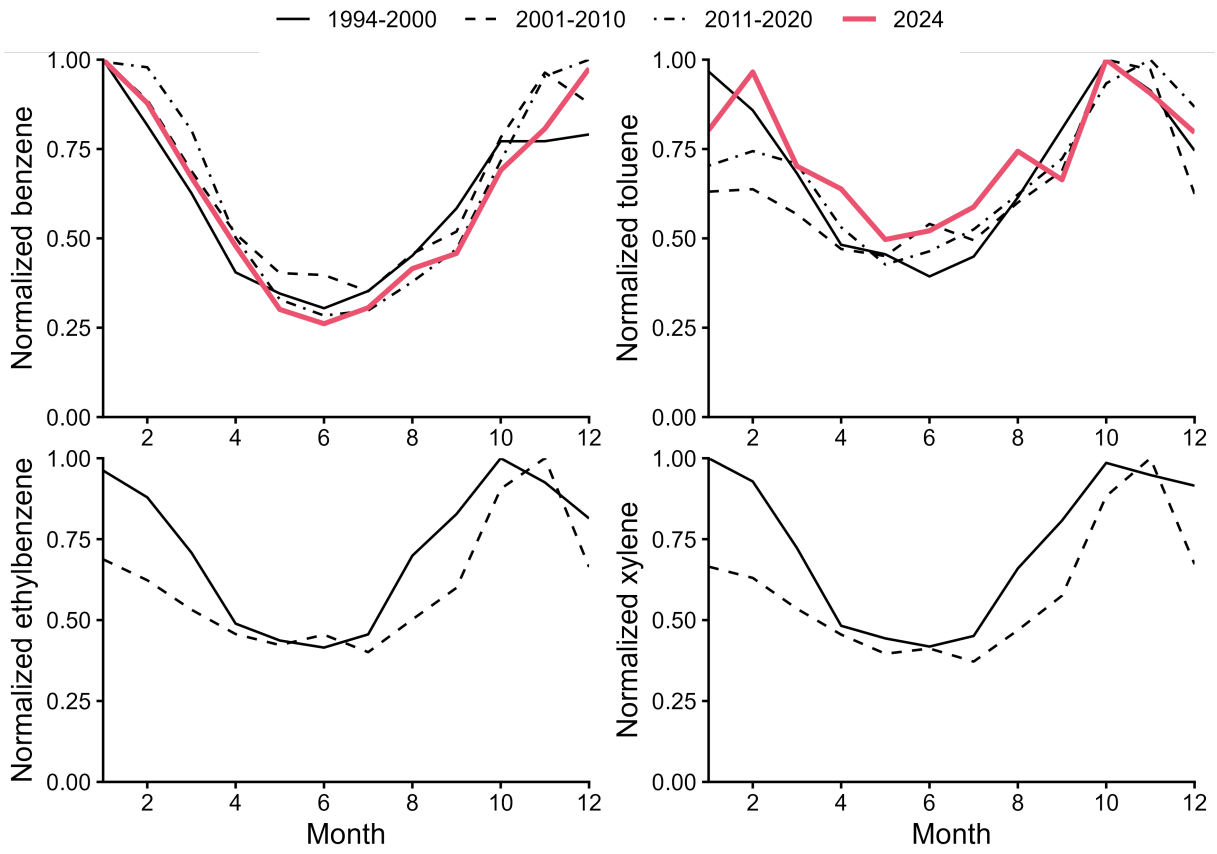

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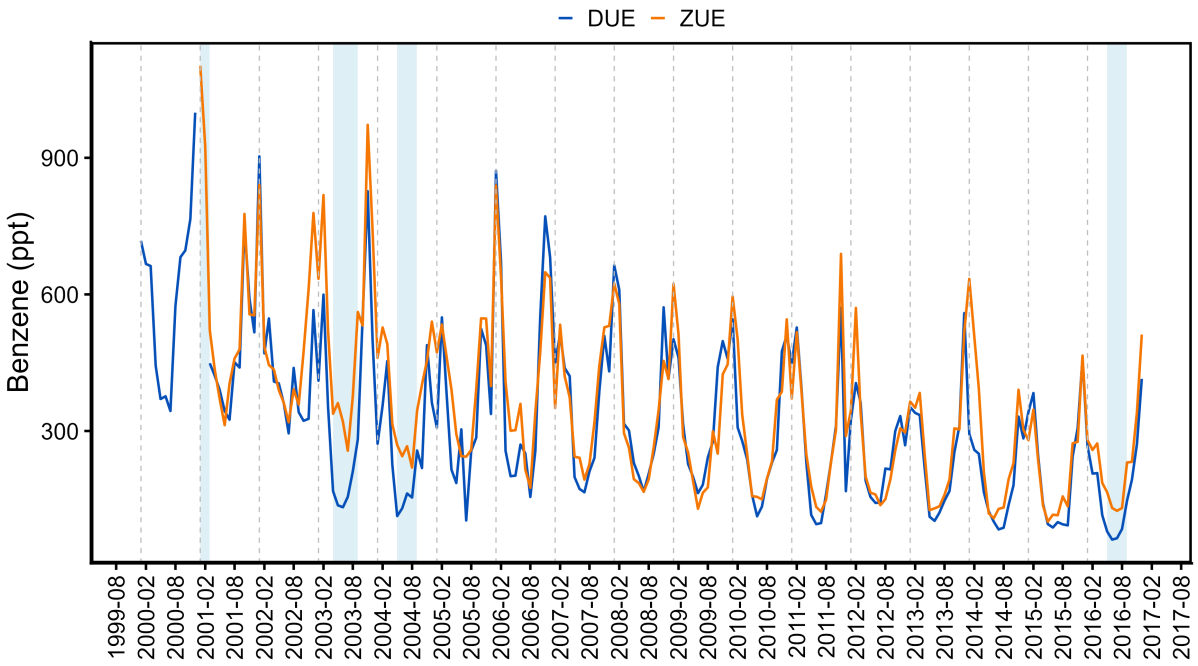


Figure S10. Monthly average benzene concentration in DUE (blue) and in ZUE (orange) from 2000 to 2016. The vertical gray bars represent the differences observed between both stations as shown in Fig. 3. in 2003, 2004 and 2016.

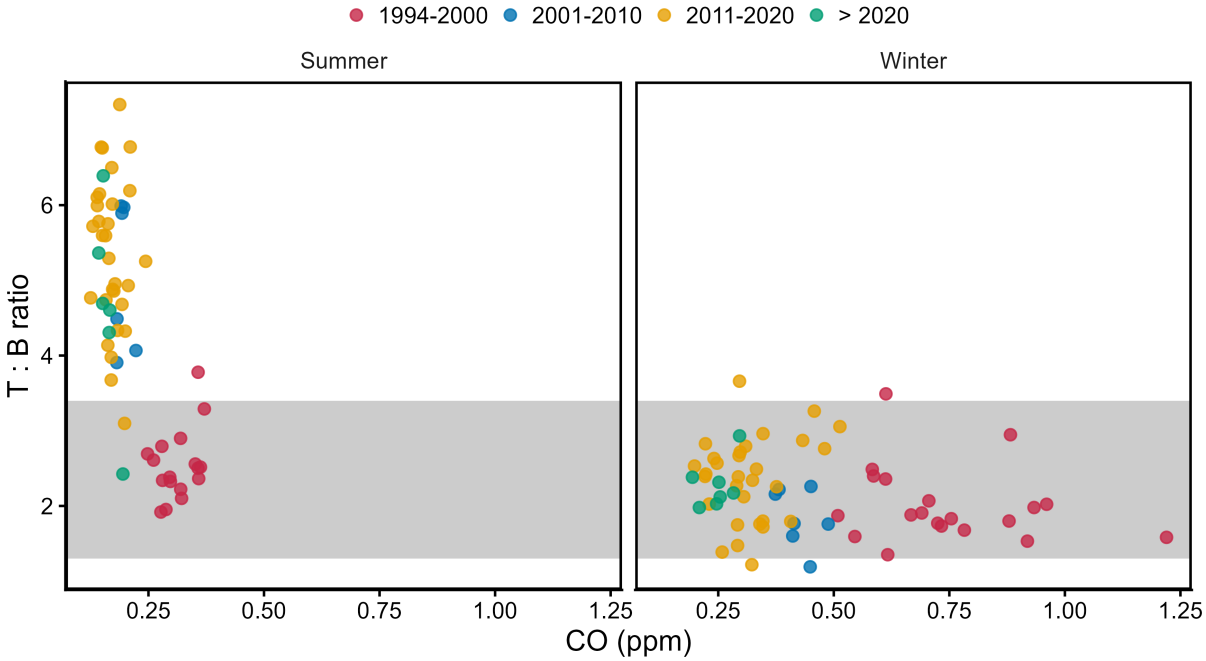


Figure S11. Monthly averages for T:B ratio and their corresponding CO concentrations in DUE grouped by time periods (1994–2000, 2001–2010, 2011-2020, > 2000) in summer (left) and in winter (right). The gray area marks the T:B range for typical vehicle emissions (1.3 - 3.4).

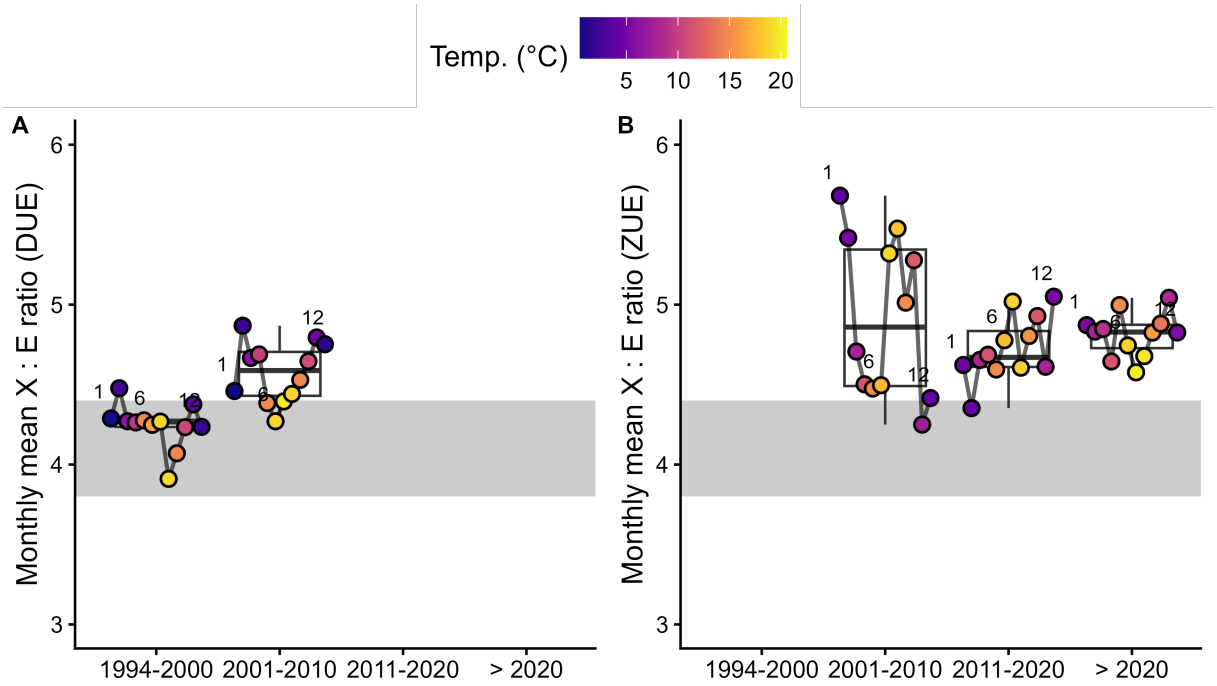
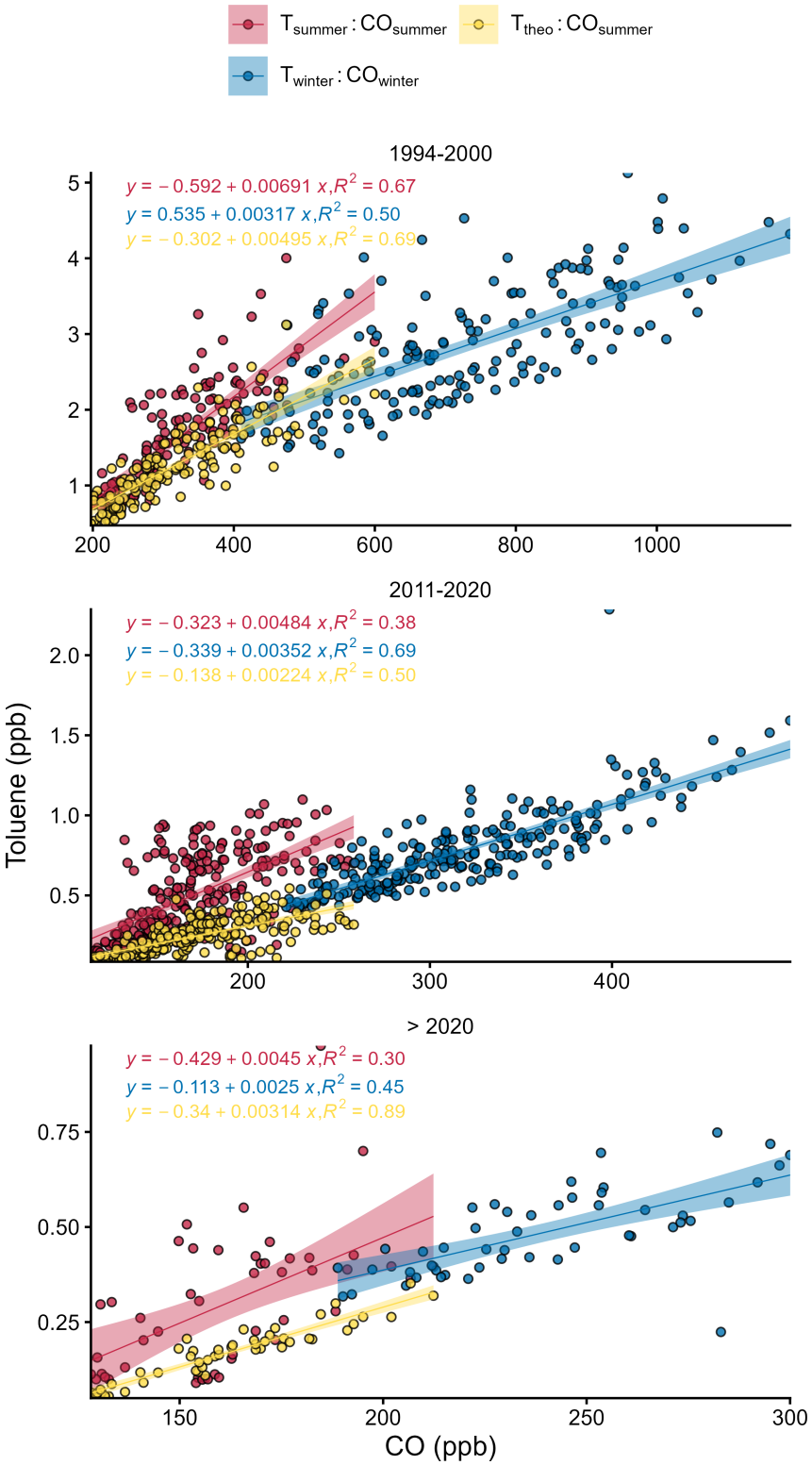


Figure S12. Monthly average X:E ratio in DUE (A) and ZUE (B) grouped by time periods (1994–2000, 2001–2010, 2011-2020, > 2000). Each dot represents the average X : E ratio for a given month, color-coded by the corresponding mean temperature (°C). The gray area marks the X:E range for fresh gasoline emissions (3.8 - 4.4). Labels for January (1), June (6), and December (12) are indicated.



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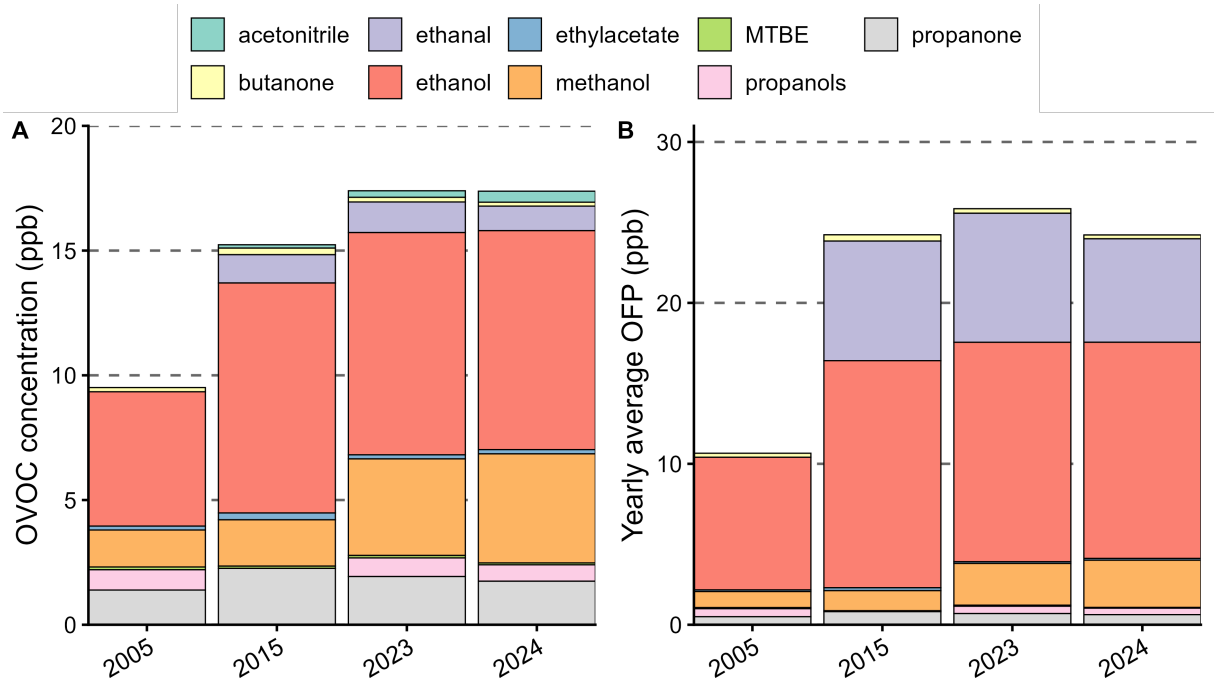

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