

# **Supplementary material to: Source apportionment of size and time resolved trace elements and organic aerosols from an urban courtyard site in Switzerland**

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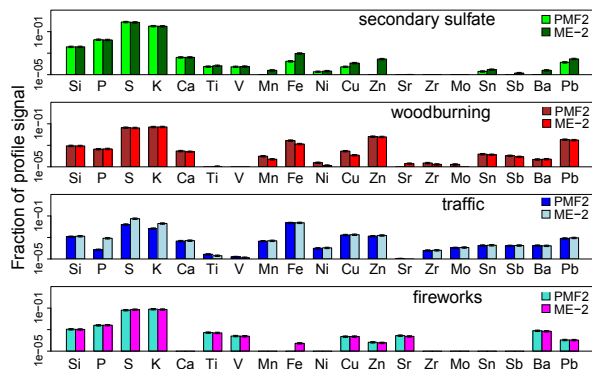
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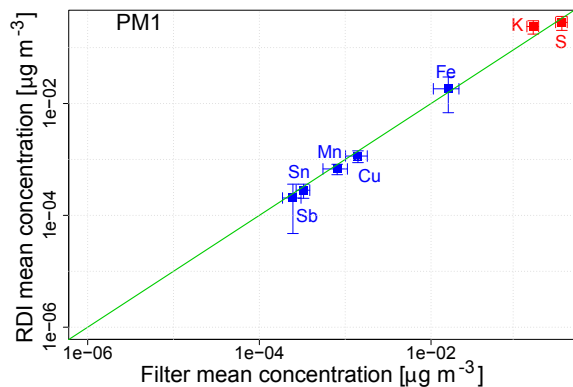
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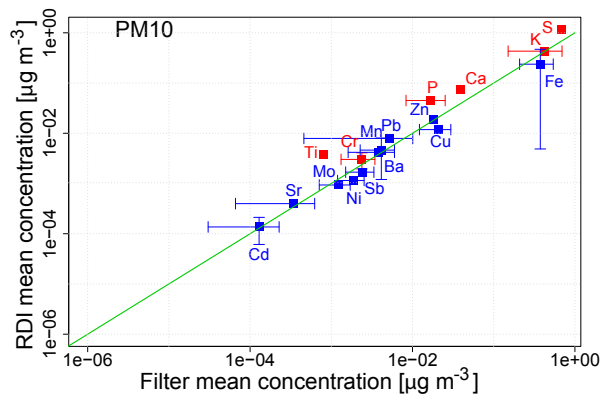
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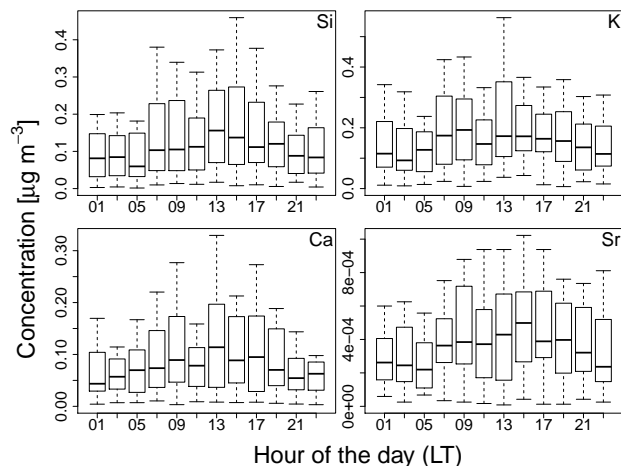
**Fig. 1. Supplementary:** Comparison of the PMF factor profiles for  $\text{PM}_{1-0.1}$  obtained with ME-2 and PMF2 algorithms for a calculation with the full data set (including NYE data) from top to bottom: secondary sulfate, wood combustion, road traffic and fire works.



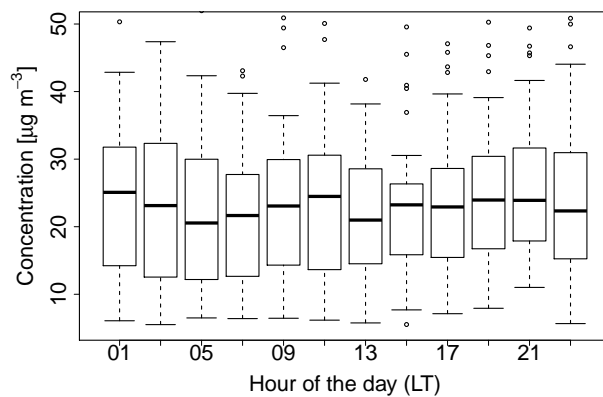
**Fig. 2.** *Supplementary:* Comparison of the mean values of 18 PM<sub>1</sub> filter samples from high-volume samplers and RDI data. Elements measured at the X05DA beamline at SLS are displayed in red, elements measured at HASYLAB L beamline are displayed in blue.



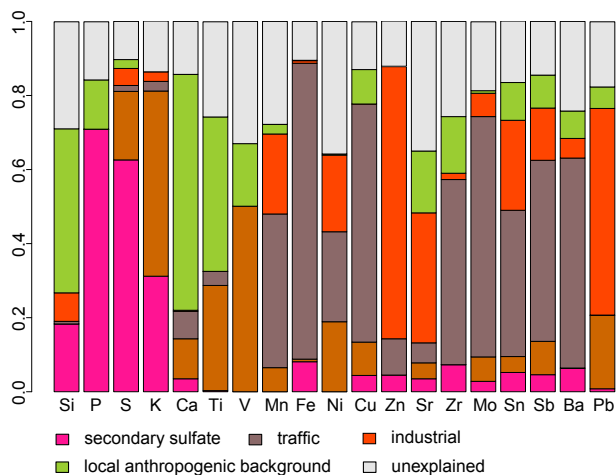
**Fig. 3. Supplementary:** Comparison of the mean values of nine  $\text{PM}_{10}$  filter samples from high-volume samplers during the long-term campaign and RDI data. Elements measured at the X05DA beamline at SLS are displayed in red, elements measured at HASYLAB L beamline are displayed in blue.



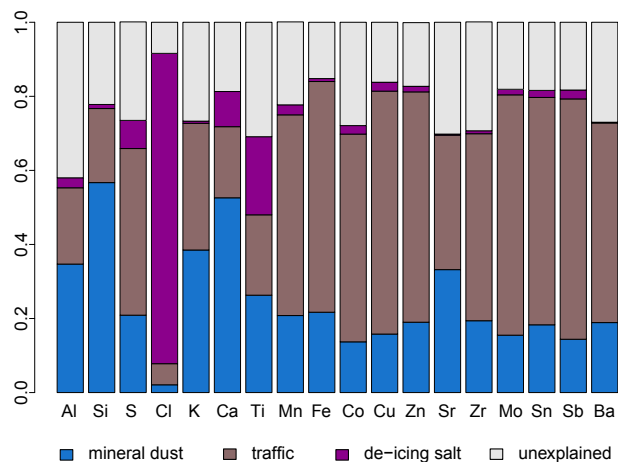
**Fig. 4.** *Supplementary:* Average diurnal variations of crustal elements Si, K, Ca and Sr in the largest size range,  $\text{PM}_{10-2.5}$ . Elevated mass concentrations of mineral dust are found during midday and the variations are not as strong as for traffic related elements. Data during fireworks at New Years Eve from 31.12.2008 15:00 LT to 01.01.2009 05:00 LT are excluded.



**Fig. 5. Supplementary:** Average diurnal variations of PM<sub>10</sub> mass concentrations.

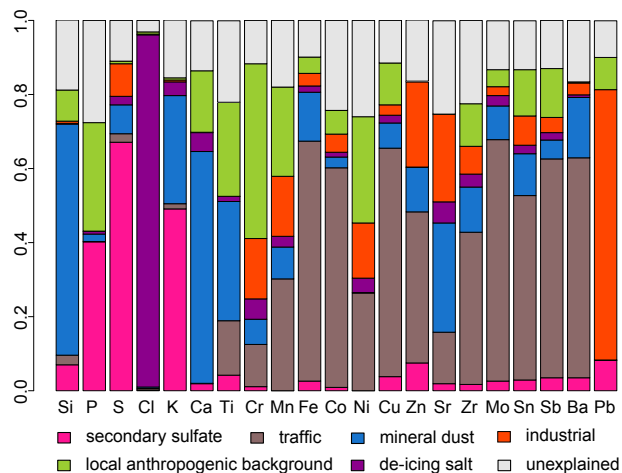


**Fig. 6.** *Supplementary:* Explained variation of the factor profiles for  $PM_{1-0.1}$ , secondary sulfate (magenta), wood combustion (brown), road traffic (grey), industrial (orange), local anthropogenic background (green) and unexplained (bright grey).

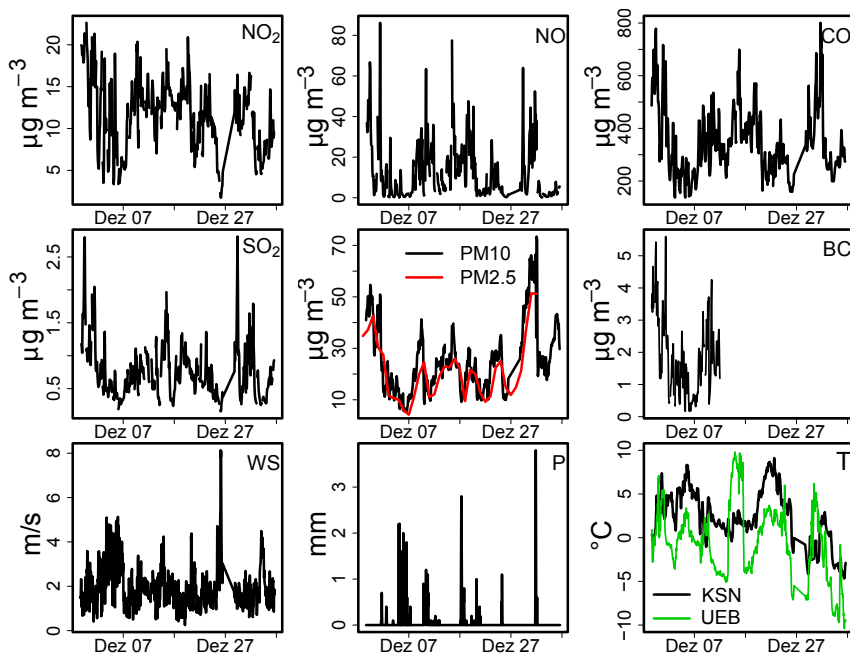


**Fig. 7. Supplementary:** Explained variation of the factor profiles for PM<sub>10-2.5</sub>, mineral dust (blue), road traffic (grey), de-icing salt (purple) and unexplained (bright grey).

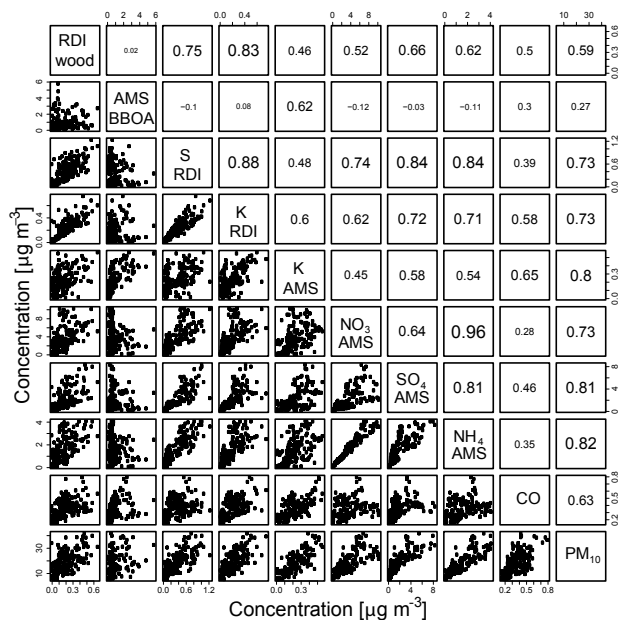




**Fig. 8. *Supplementary*:** Explained variation of the factor profiles for PM<sub>2.5-1</sub>, secondary sulfate (magenta), road traffic (grey), mineral dust (blue), de-icing salt (purple), industrial (orange), local anthropogenic background (green) and unexplained (bright grey).



**Fig. 9.** *Supplementary:* Additional data from the NABEL network (NO<sub>2</sub>, NO, CO, SO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>), BC at the beginning of the campaign from black carbon measurements with a multi-wavelength Aethalometer and wind speed, precipitation and temperature from the Swiss Meteorological network. The temperature is shown in black for Zürich Kaserne and in green for an elevated station, revealing two short thermal inversion periods with respect to a height of Üetliberg (871 m a.s.l.). The data were recorded with a time resolution of one hour (2 min for Aethalometer) and are binned into 2-h intervals for this plot.



**Fig. 10.** *Supplementary:* Matrix of scatter plots to show the pair-wise correlations of the wood combustion factor found for PM<sub>1-0.1</sub> with RDI-PMF, AMS-BBOA factor, S and K measured with RDI, K, NO<sub>3</sub><sup>-</sup>, SO<sub>4</sub><sup>2-</sup> and NH<sub>4</sub><sup>+</sup> measured with AMS, CO and total PM<sub>10</sub> mass concentrations. The panels in the upper right half show the Pearson correlation coefficients and the lower left panels show corresponding data points.