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# **Supplementary material to manuscript amt-2010-56:**

## **Quantitative sampling and analysis of trace elements in atmospheric aerosols: impactor characterization and Synchrotron-XRF mass calibration**

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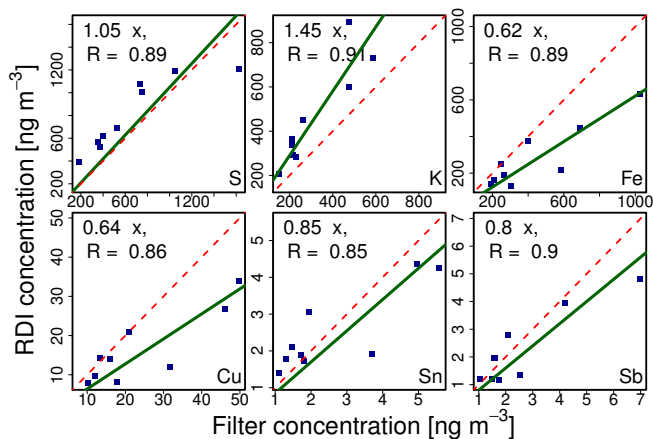
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# 1 Supplementary Material

## 1.1 Scatterplots



**Fig. 1.** Scatterplots of RDI concentrations in ng m<sup>3</sup> versus filter concentrations in ng m<sup>3</sup> showing the correlation of PM<sub>10</sub> values for the Zürich winter campaign 2008/09. The same selection of elements as in Fig. 11 is shown: S, K, Fe, Cu, Sn and Sb. Regressions are forced to have an intercept of zero. Each data point corresponds to one day, i.e. one filter value and the mean of 12 RDI values.

## 1.2 Averaged Values

**Table 1.** Comparison of average mass concentrations: the first two columns present mean values of elements measured by PM<sub>1</sub> and PM<sub>10</sub> high-volume filters compared to the same elements measured with the RDI. PM<sub>1</sub> daily filter samples were taken every day in the period from 30 November 2008 till 17 December 2008 and analyzed for the following elements (a): Al, P, S, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Rb, Sr, Zr, Cd, Sn, Sb, Ba and Pb. PM<sub>10</sub> daily filter samples were taken every second day in the period from 1 till 17 December 2008 and analyzed for the following elements (b): Al, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Rb, Sr, Zr, Mo, Cd, Sn, Sb, Ba and Pb. In addition, average values for all data points throughout the whole campaign as well as the same period excluding New Year's Eve (NYE, 31 December 2008 15:00 LT to 1 January 2009 05:00 LT) are shown. The third column lists the average values for the whole range of elements, which can be detected by the RDI-SR-XRF method (c): Al, Si, P, S Cl, K Ca, Ti, Cr Mn, Fe, Co, Ni, Cu, Zn, Sr, Zr, Mo, Cd, Sn, Sb, Ba and Pb. The last two columns give averaged values for quasi-continuously monitored PM<sub>10</sub> mass concentrations as well as averaged PM<sub>2.5</sub> and PM<sub>10</sub> mass concentrations from daily filter analysis. Values marked with an asterisk (\*) are averaged only for days in 2008 (28 November till 31 December).

PM <sub>1</sub>	Filter (a)	RDI (a)	all RDI elements (c)	PM <sub>1</sub> cont.	PM <sub>1</sub> daily
Filter period	0.64	0.68	0.69	-	-
Whole camp.	-	1.99	2.02	-	-
Period w/o NYE	-	1.67	1.68	-	-
PM <sub>2.5</sub>	Filter (NA)	RDI (NA)	all RDI elements (c)	PM <sub>2.5</sub> cont.	PM <sub>2.5</sub> daily
Whole camp.	-	-	3.52	-	-
Period w/o NYE	-	-	3.08	-	21.19*
PM <sub>10</sub>	Filter (b)	RDI (b)	all RDI elements (c)	PM <sub>10</sub> cont.	PM <sub>10</sub> daily
Filter period	2.7	2.55	2.78	20.56	20.61
Whole camp.	-	5.09	5.3	25.23	-
Period w/o NYE	-	4.58	4.79	24.64	24.96*