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*Supplement of*

## **Exploration of PM<sub>2.5</sub> sources on the regional scale in the Pearl River Delta based on ME-2 modeling**

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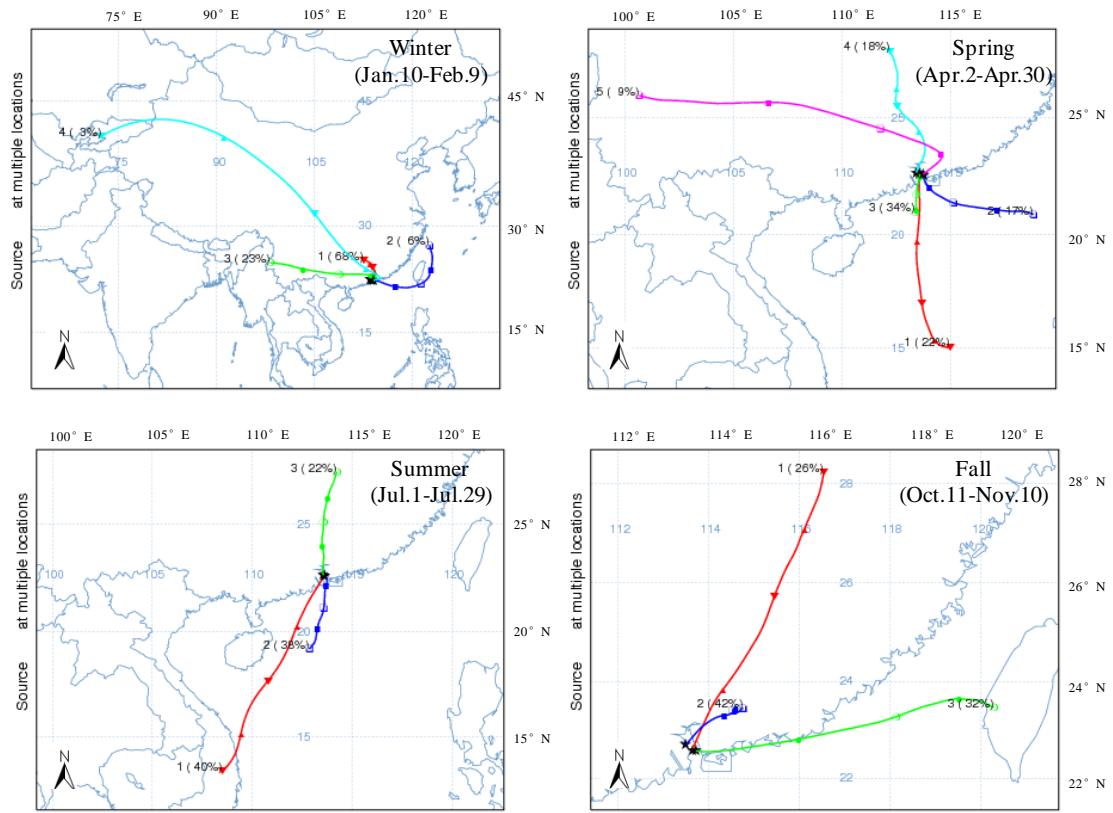
**Table S1.** Estimation of abundance of ions in sea salt particulate and elements in fugitive dust particulate.

	Abundance in seawater <sup>a</sup>	Abundance in sea salt particle <sup>a</sup>		Abundance in upper crust <sup>b</sup>	Abundance in soil dust particle <sup>b</sup>
Cl <sup>-</sup>	1.9%	55.4%	O	46.60%	47.0%
Na <sup>+</sup>	1.1%	30.8%	Si	27.72%	28.0%
SO <sub>4</sub> <sup>2-</sup>	0.3%	7.7%	Al	8.1%	8.2%
Mg <sup>2+</sup>	0.1%	3.7%	Fe	5.0%	5.0%
Ca <sup>2+</sup>	0.04%	1.2%	Ca	3.6%	3.7%
K <sup>+</sup>	0.04%	1.1%	Na	2.8%	2.9%
F <sup>-</sup>	0.0001%	0.003%	K	2.6%	2.6%
Total	3.4%	100%	Mg	2.1%	2.1%
			Ti	0.4%	0.4%
			V	0.011%	0.011%
			Ni	0.008%	0.008%
			Zn	0.007%	0.007%
			Pb	0.002%	0.002%
			Total	99.1%	100%

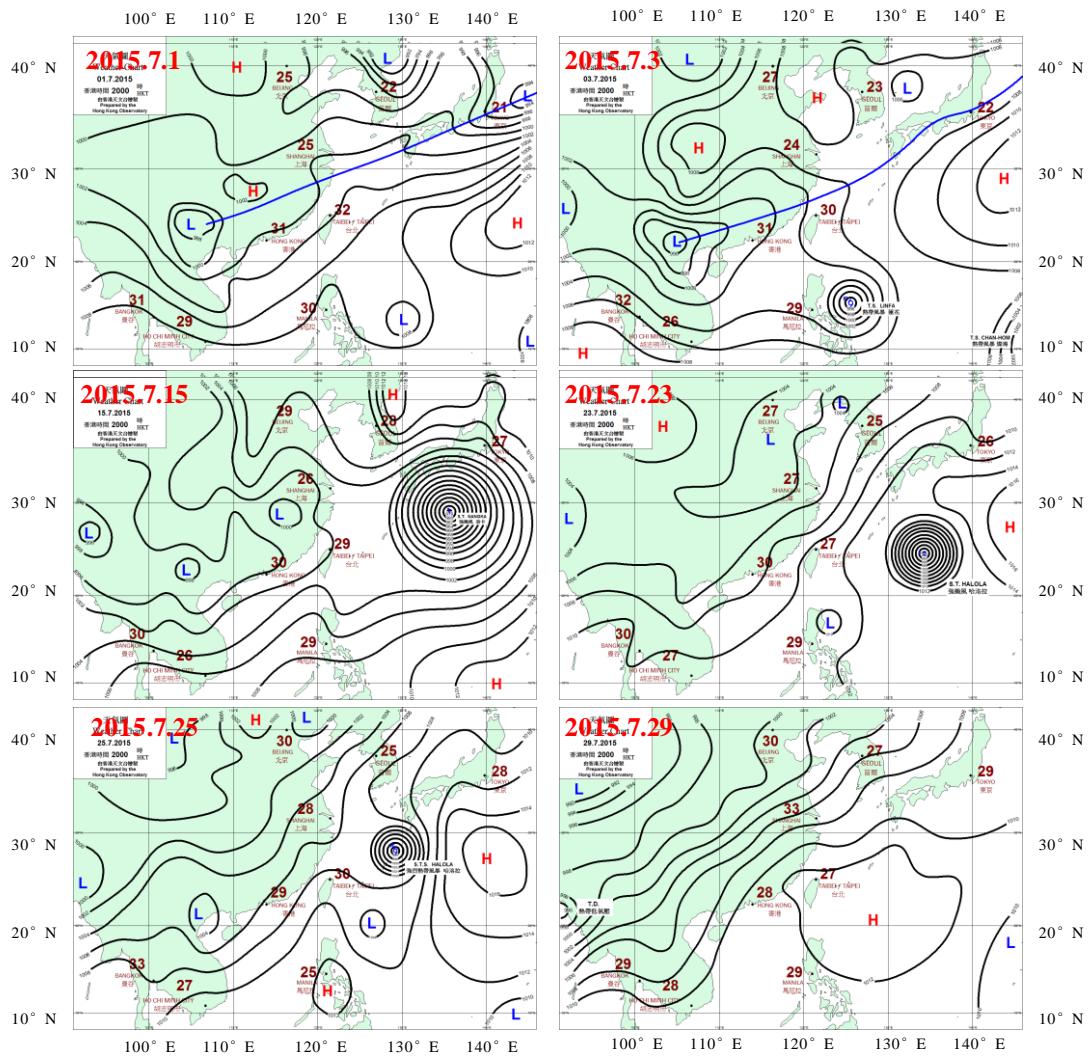
Notes: <sup>a</sup>, data from Mason (1982); <sup>b</sup>, data from Taylor and McLennan (1995).

**Table S2.** Enrichment factors of all metallic elements in PM<sub>2.5</sub> using aluminum as the reference element at six sites. The abundance of elements in the earth's crust is based on the data reported by (Taylor and McLennan, 1995).

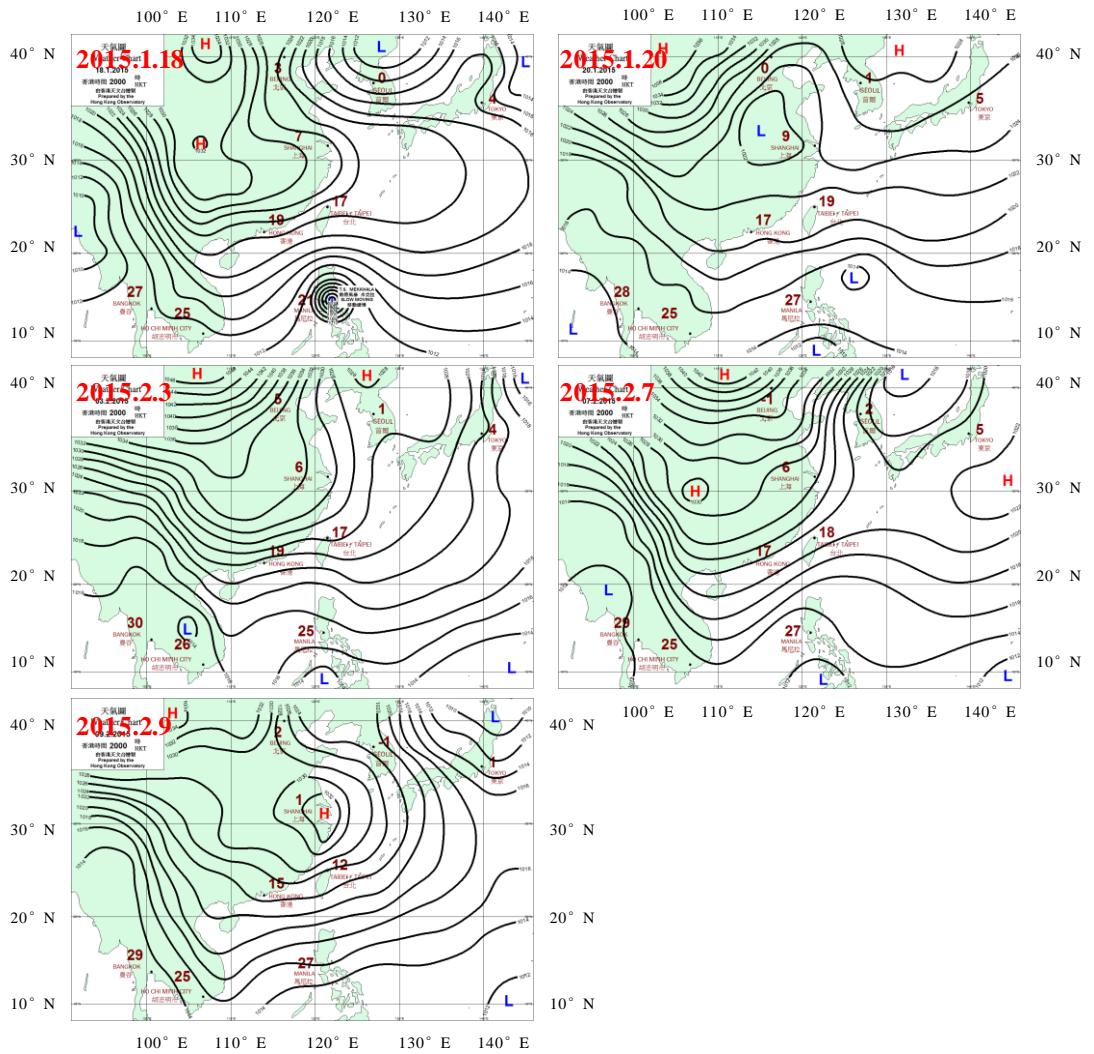
	<b>QA</b>	<b>DM</b>	<b>DP</b>	<b>UT</b>	<b>MDS</b>	<b>HS</b>	<b>Average of four months at six sites</b>
<b>Ca</b>	3	3	4	3	3	3	3
<b>Ti</b>	2	2	3	2	2	3	2
<b>V</b>	66	36	125	54	66	57	64
<b>Ni</b>	91	50	121	68	146	80	89
<b>Zn</b>	673	609	878	718	1182	1798	821
<b>Cd</b>	3223	2901	4857	3331	6124	8691	4121
<b>Pb</b>	532	439	941	611	986	1260	663
<b>Na</b>	5	4	7	4	7	7	5
<b>Mg</b>	2	1	2	1	1	1	2
<b>K</b>	6	5	8	6	8	12	7
<b>Fe</b>	2	2	3	3	4	3	2



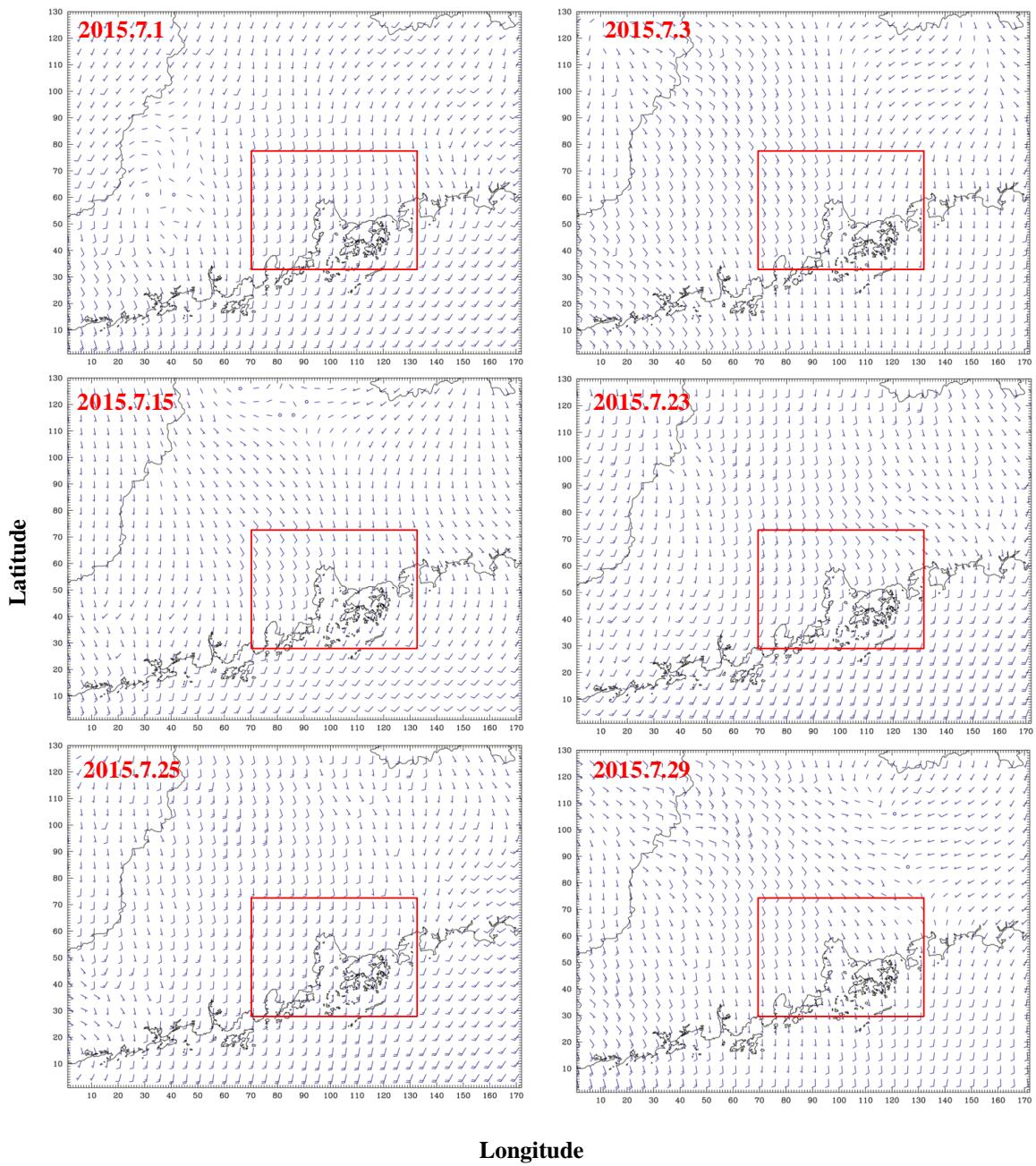
**Fig.S1.** Clustered back trajectories during the four-season observation at the sampling sites in the PRD. The clustered back trajectories were output by the Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) Model. The 48-h back trajectories beginning at 6:00 UTC were calculated every sampling day during the observation periods, and the starting altitude was 100 m.



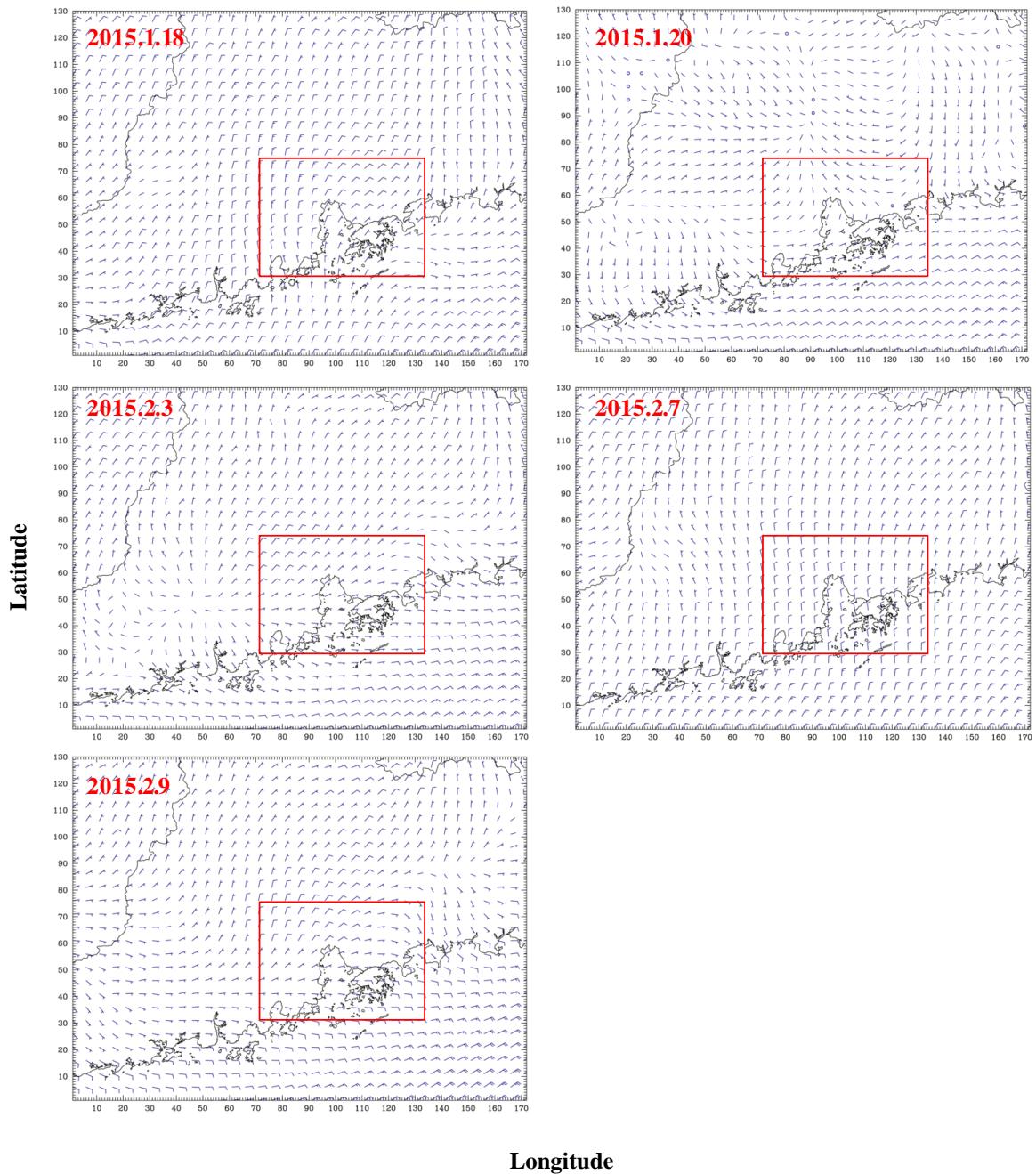
**Fig. S2.** Weather charts in southerly flow (Figures obtained at <http://www.hko.gov.hk/wxinfo/currwx/wxchtc.htm>).



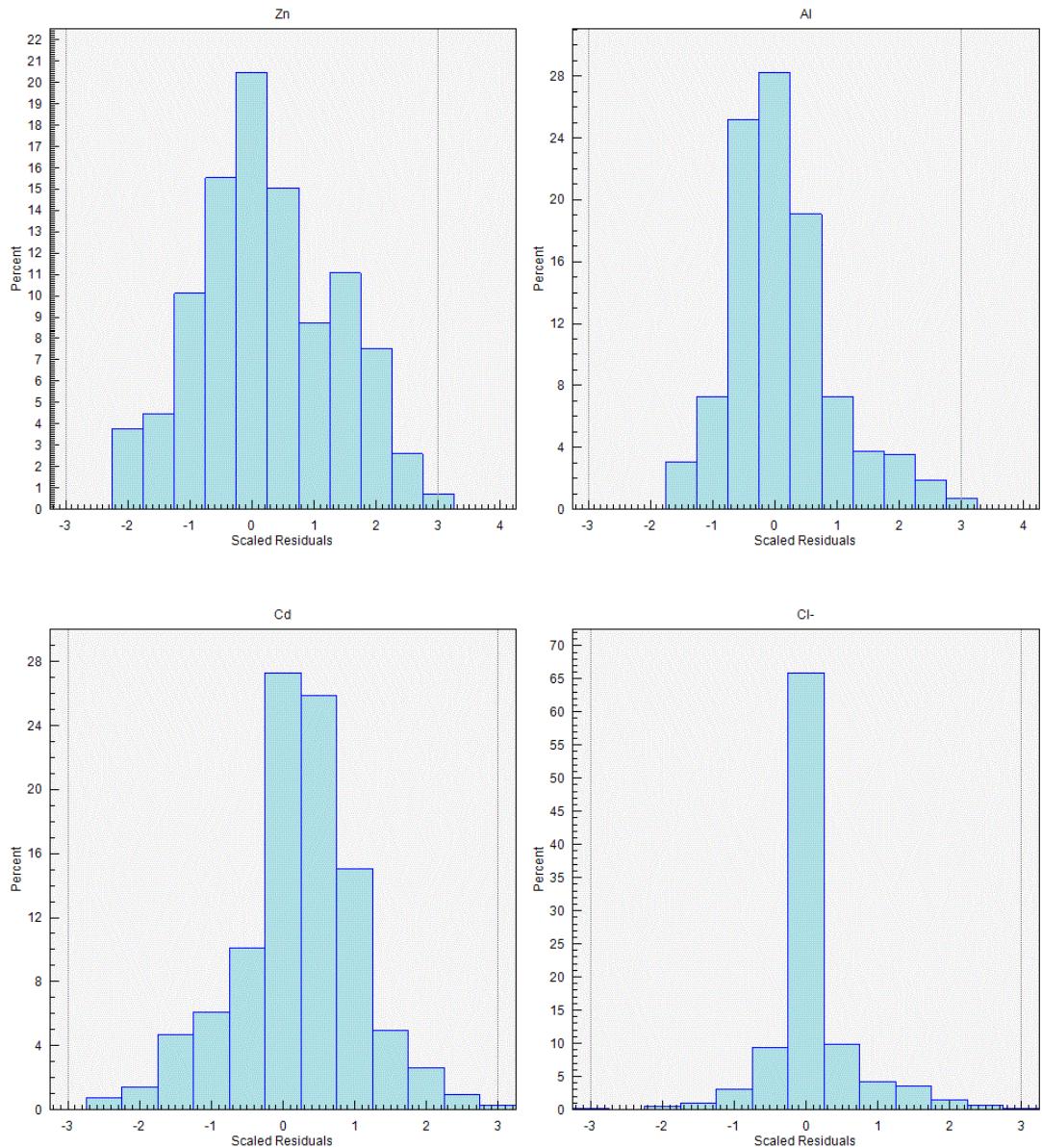
**Fig. S3.** Weather charts in northerly flow (Figures obtained at <http://www.hko.gov.hk/wxinfo/currwx/wxchtc.htm>).

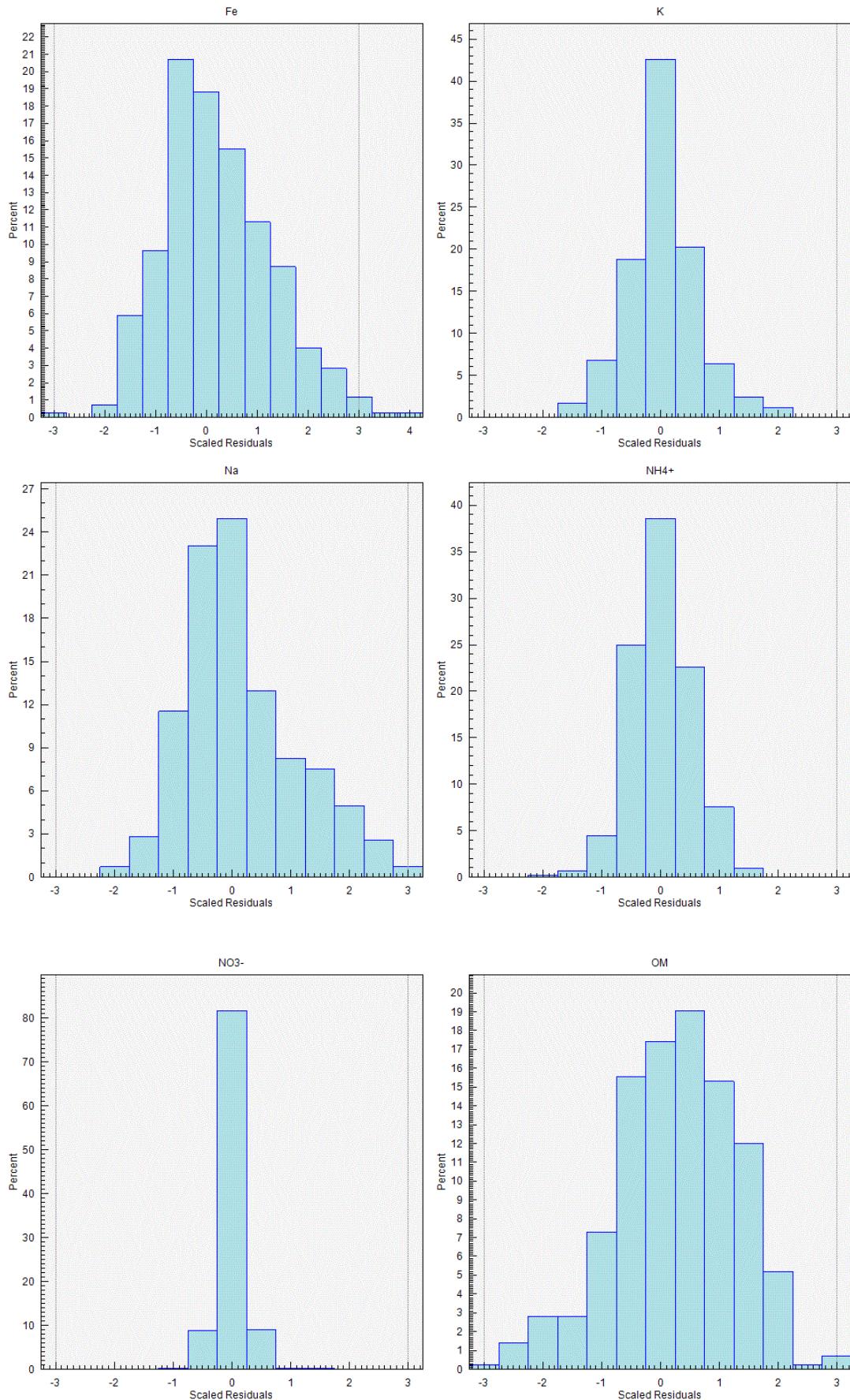


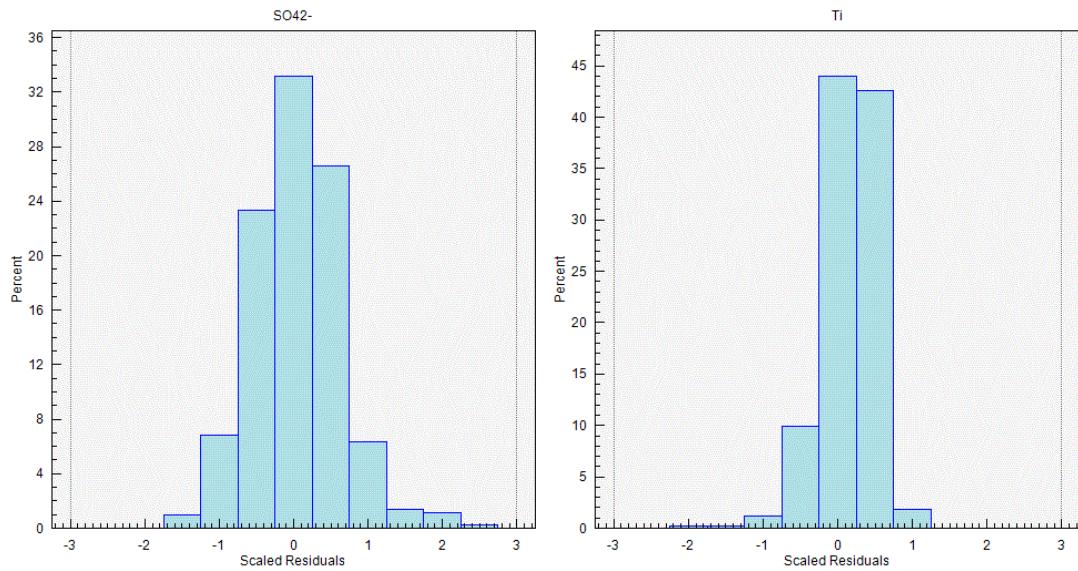
**Fig. S4.** Surface wind field charts in southerly flow (Figures obtained at [http://envf.ust.hk/dataview/mm\\_plot/current](http://envf.ust.hk/dataview/mm_plot/current) and red boxes represent the PRD region).

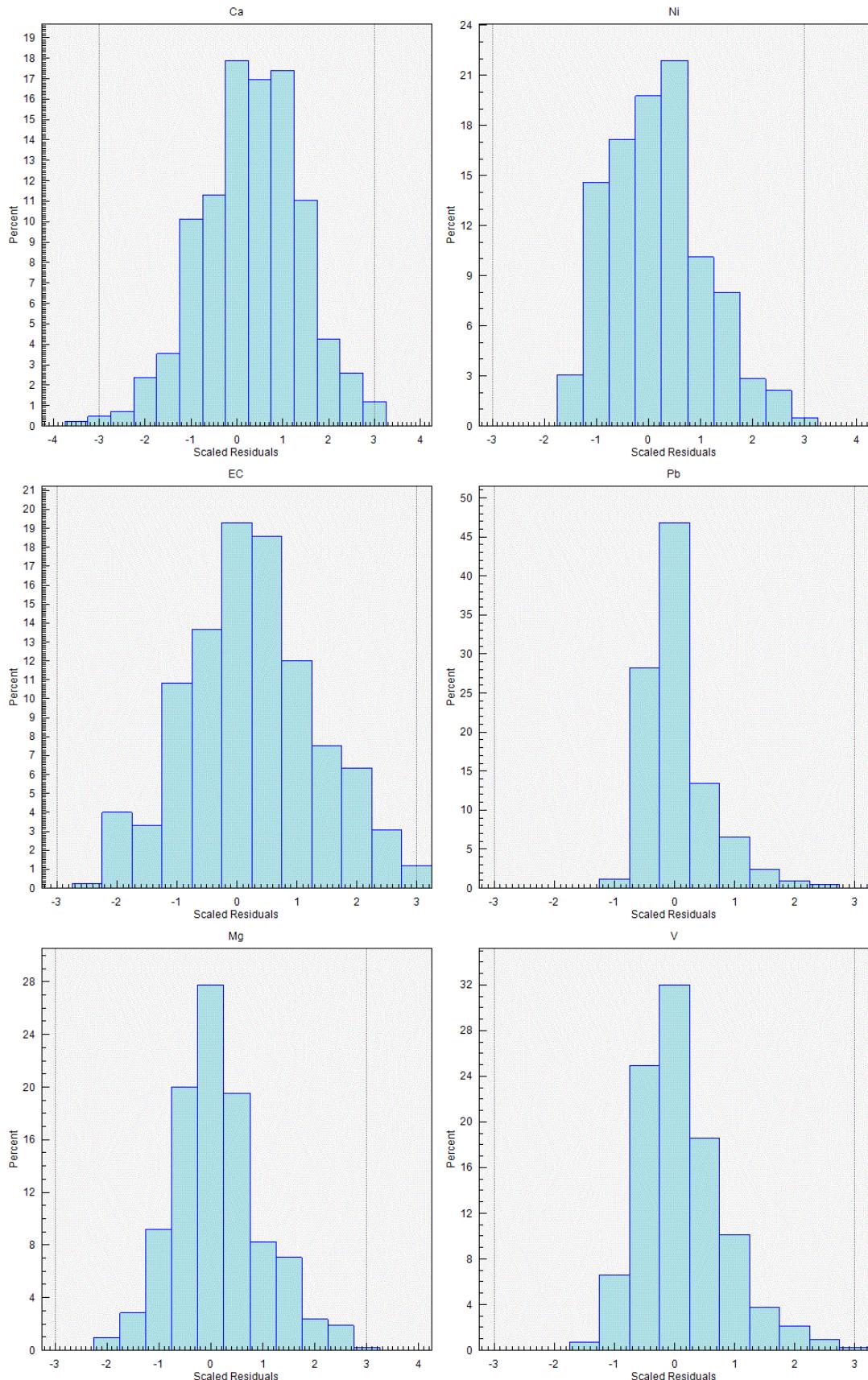


**Fig. S5.** Surface wind field charts in northerly flow (Figures obtained at [http://envf.ust.hk/dataview/mm\\_plot/current](http://envf.ust.hk/dataview/mm_plot/current) and red boxes represent the PRD region).

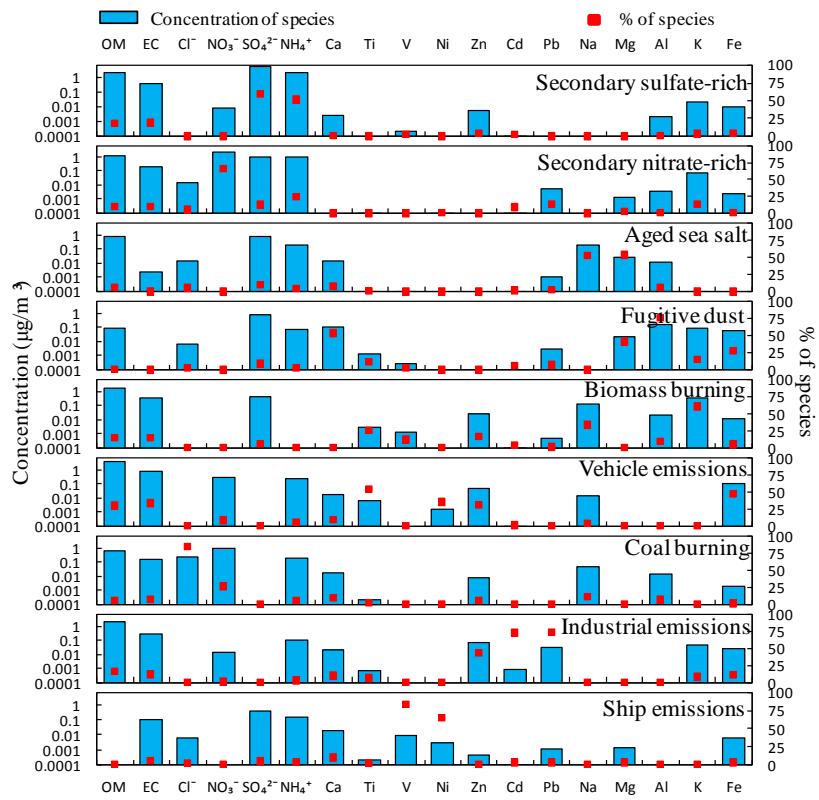




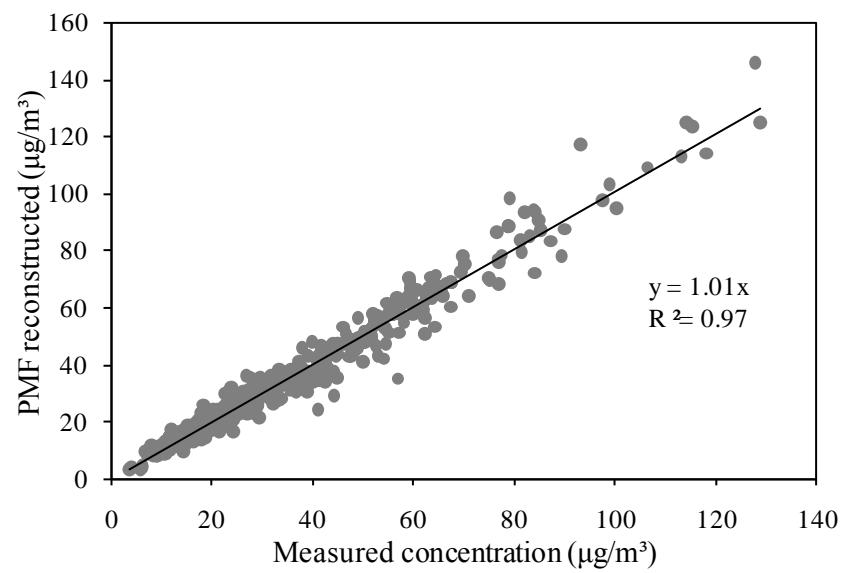




**Fig. S6.** The scaled residuals output by PMF of 18 species.



**Fig. S7.** Factor profiles and explained variations (% of species) of nine factors deduced by PMF.



**Fig. S8.** Comparison of the model-input total mass of the eighteen species and the model-reconstructed total mass of all the sources by PMF.