

Supplementary Materials:

Local and global sources of airborne suspended particulate matter in the Antarctic region

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Table S1. Statistical summary of major (a; $\mu\text{g}/\text{m}^3$) and minor elements (b; ng/m^3). Those elements that show significant deviation from the Gaussian model (statistical values outside the range -2 to +2) are in red.

a.

	<i>Al</i>	<i>Ca</i>	<i>Fe</i>	<i>K</i>	<i>Mg</i>	<i>Na</i>	<i>P</i>	<i>S</i>
Number of samples	14	15	12	15	15	15	12	15
Average	0.0628	0.114	0.161	0.447	0.226	1.77	0.118	0.283
Standard deviation	0.0440	0.072	0.166	0.759	0.158	1.27	0.295	0.143
Coefficient of variation	70.2%	63.4%	102.8%	169.9%	70.1%	71.9%	249.2%	50.4%
Minumun	0.016	0.006	0.008	0.06	0.002	0.007	0.001	0.003
Maximun	0.172	0.277	0.493	3.095	0.65	5.199	1.051	0.595
Rank	0.156	0.271	0.485	3.035	0.648	5.192	1.050	0.592
Standard skewness	2.015	0.873	1.391	5.473	1.903	1.910	4.829	0.802
Standard kurtosis	1.171	0.422	-0.056	9.913	2.196	2.289	8.310	0.999

b.

	<i>Ti</i>	<i>V</i>	<i>Mn</i>	<i>Cu</i>	<i>Zn</i>	<i>As</i>	<i>Sr</i>	<i>Zr</i>	<i>Sn</i>	<i>Hf</i>	<i>Pb</i>
Number of samples	15	15	14	13	14	15	15	14	11	14	13
Average	8.39	0.864	1.05	0.506	4.58	0.399	1.42	6.43	0.0590	0.306	0.194
Standard deviation	4.57	0.567	0.763	0.567	3.74	0.205	0.993	3.32	0.0736	0.176	0.144
Coefficient of variation	54.6%	65.7%	72.6%	112.0%	81.6%	51.5%	69.8%	51.7%	124.5%	57.7%	74.3%
Minumun	1.46	0.08	0.04	0	0.04	0.15	0.07	1.88	0	0.05	0.04
Maximun	17.97	2.31	2.27	2.1	14.04	0.93	4.16	13.82	0.21	0.63	0.49
Rank	16.51	2.23	2.23	2.1	14.0	0.78	4.09	11.94	0.21	0.58	0.45
Standard skewness	0.509	1.635	1.0830	3.151	1.962	1.749	2.080	1.405	1.883	0.824	1.731
Standard kurtosis	-0.169	1.464	-0.753	3.697	1.598	1.468	2.624	0.373	0.458	-0.398	0.437

Table S2. Statistics of correlations between different elements. For each element the first, second and third row correspond to Pearson correlation coefficient, sample size and P-Value, respectively. Those elements that show significant correlation (P-value <0.05) are shown in shaded cells.

	Al	Ca	Fe	K	Mg	Na	P	S
Al		0.7875	0.4708	0.1007	0.5290	0.4893	0.1718	0.7370
		(14)	(11)	(14)	(14)	(14)	(11)	(14)
		0.0008	0.1438	0.7321	0.0517	0.0758	0.6135	0.0026
Ca	0.7875		0.5102	0.1411	0.8989	0.8867	0.0367	0.8814
	(14)		(12)	(15)	(15)	(15)	(12)	(15)
	0.0008		0.0902	0.6159	0.0000	0.0000	0.9098	0.0000
Fe	0.4708	0.5102		-0.2482	0.2910	0.2862	-0.3423	0.2375
	(11)	(12)		(12)	(12)	(12)	(10)	(12)
	0.1438	0.0902		0.4366	0.3587	0.3672	0.3329	0.4572
K	0.1007	0.1411	-0.2482		0.1427	0.1392	0.9821	0.0367
	(14)	(15)	(12)		(15)	(15)	(12)	(15)
	0.7321	0.6159	0.4366		0.6119	0.6208	0.0000	0.8967
Mg	0.5290	0.8989	0.2910	0.1427		0.9978	0.0258	0.8582
	(14)	(15)	(12)	(15)		(15)	(12)	(15)
	0.0517	0.0000	0.3587	0.6119		0.0000	0.9365	0.0000
Na	0.4893	0.8867	0.2862	0.1392	0.9978		0.0256	0.8426
	(14)	(15)	(12)	(15)	(15)		(12)	(15)
	0.0758	0.0000	0.3672	0.6208	0.0000		0.9371	0.0001
P	0.1718	0.0367	-0.3423	0.9821	0.0258	0.0256		-0.0147
	(11)	(12)	(10)	(12)	(12)	(12)		(12)
	0.6135	0.9098	0.3329	0.0000	0.9365	0.9371		0.9638
S	0.7370	0.8814	0.2375	0.0367	0.8582	0.8426	-0.0147	
	(14)	(15)	(12)	(15)	(15)	(15)	(12)	
	0.0026	0.0000	0.4572	0.8967	0.0000	0.0001	0.9638	
Ti	0.9430	0.7327	0.4133	0.2022	0.4581	0.4152	0.2316	0.6993
	(14)	(15)	(12)	(15)	(15)	(15)	(12)	(15)
	0.0000	0.0019	0.1817	0.4699	0.0859	0.1238	0.4690	0.0037
V	0.3215	0.3978	0.2269	0.6827	0.3043	0.3128	0.6994	0.0723
	(14)	(15)	(12)	(15)	(15)	(15)	(12)	(15)
	0.2624	0.1419	0.4781	0.0050	0.2702	0.2563	0.0114	0.7980
Mn	0.8635	0.5941	0.7231	-0.0605	0.1955	0.1641	-0.0647	0.3970
	(13)	(14)	(12)	(14)	(14)	(14)	(11)	(14)
	0.0001	0.0251	0.0079	0.8373	0.5030	0.5752	0.8500	0.1598
Cu	0.3048	0.2666	0.6383	-0.0294	0.0705	0.0447	-0.2132	0.0413
	(12)	(13)	(11)	(13)	(13)	(13)	(10)	(13)
	0.3354	0.3786	0.0346	0.9239	0.8189	0.8846	0.5542	0.8935
Zn	0.2417	0.2914	0.6553	0.0507	0.0759	0.0745	-0.0360	-0.0005
	(13)	(14)	(12)	(14)	(14)	(14)	(12)	(14)
	0.4263	0.3121	0.0207	0.8632	0.7965	0.8001	0.9114	0.9987
As	0.1272	0.3146	0.0366	0.7625	0.3145	0.3202	0.7326	0.0072
	(14)	(15)	(12)	(15)	(15)	(15)	(12)	(15)
	0.6648	0.2534	0.9101	0.0009	0.2536	0.2446	0.0067	0.9796
Sr	0.5976	0.9256	0.3318	0.1537	0.9888	0.9873	0.0687	0.8846
	(14)	(15)	(12)	(15)	(15)	(15)	(12)	(15)



	0.0240	0.0000	0.2920	0.5846	0.0000	0.0000	0.8321	0.0000
Zr	0.1981	0.4665	0.2678	-0.3501	0.5235	0.5179	-0.5253	0.2899
	(13)	(14)	(12)	(14)	(14)	(14)	(11)	(14)
	0.5164	0.0927	0.4000	0.2198	0.0547	0.0578	0.0970	0.3147
Sn	0.2129	0.1990	0.3294	0.1827	-0.0016	-0.0391	-0.0222	-0.2143
	(10)	(11)	(10)	(11)	(11)	(11)	(9)	(11)
	0.5548	0.5575	0.3526	0.5909	0.9964	0.9091	0.9547	0.5269
Hf	0.2626	0.5369	0.3574	-0.3458	0.5532	0.5429	-0.5275	0.3299
	(13)	(14)	(12)	(14)	(14)	(14)	(11)	(14)
	0.3862	0.0477	0.2541	0.2259	0.0402	0.0448	0.0954	0.2493
Pb	0.7557	0.4245	0.5064	-0.1076	0.0771	0.0400	-0.1344	0.3358
	(13)	(13)	(10)	(13)	(13)	(13)	(10)	(13)
	0.0028	0.1483	0.1353	0.7265	0.8024	0.8966	0.7113	0.2620