Central Tibetan Plateau atmospheric trace metals contamination: a 500-year record from the Puruogangri ice core

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Appendices

Appendix A

	LOD[1]	Procedural blank		Accuracy	
Trace Element	This study	Artificial Ice Core	Ultra Pure Water	TMRain-95 Found[2]	TMRain-95 Certified
	pg g^{-1}	**pg g^{-1}**	**pg g^{-1}**	**pg g^{-1}**	**pg g^{-1}**
Ag	0.1	0.6 ± 0.1	0.6 ± 0.1		
As	2	< LOD	< LOD	952 ± 107	1070 ± 250
Ba	7	18 ± 8	14 ± 5	762 ± 149	730 ± 150
Bi	0.02	0.04 ± 0.01	0.04 ± 0.04	743 ± 39	630 ± 260
Cd	0.2	0.2 ± 0.02	0.2 ± 0.1	423 ± 31	480 ± 120
Co	0.1	1 ± 0.2	0.8 ± 0.1	222 ± 9	220 ± 37
Cr	1	10 ± 6	4 ± 0.3	739 ± 72	790 ± 170
Cs	0.1	0.4 ± 0.1	0.3 ± 0.1		
Cu	3	25 ± 6	20 ± 1	5708 ± 570	6200 ± 930
Ga	1	2 ± 0.03	2 ± 0.2		
Mn	0.5	4 ± 1	3 ± 0.6	5804 ± 405	6100 ± 780
Nb	0.1	0.6 ± 0.3	0.4 ± 0.1		
Ni	1	4 ± 1	3 ± 0.6	757 ± 75	800 ± 170
Pb	1	< LOD	< LOD	264 ± 31	290 ± 93
Rb	2	9 ± 3	5 ± 0.6		
Sb	0.1	0.5 ± 0.06	0.3 ± 0.1	296 ± 19	350 ± 100
Sn	0.2	16 ± 4	11 ± 8		
Sr	7	85 ± 1	75 ± 16	1593 ± 244	1700 ± 260
Tl	0.01	0.03 ± 0.01	0.02 ± 0.01	297 ± 17	330 ± 72
U	0.02	0.09 ± 0.01	0.1 ± 0.02	236 ± 30	250 ± 60
V	1	3 ± 0.2	3 ± 1	599 ± 52	640 ± 120
Zn	3	7 ± 2	7 ± 1		
	ng.g^{-1}	**ng.g^{-1}**	**ng.g^{-1}**	**ng.g^{-1}**	**ng.g^{-1}**
Al	0.02	0.8 ± 0.3	0.6 ± 0.4	2 ± 1	2 ± 1
Fe	0.1	0.8 ± 0.9	0.3 ± 0.03	22 ± 11	24 ± 4
Li	0.07	0.2 ± 0.01	0.2 ± 0.02	0.2 ± 0.5	0.9 ± 0.08
Mg	0.02	0.2 ± 0.05	0.2 ± 0.05		
Na	0.2	0.5 ± 0.07	0.3 ± 0.07		
Ti	0.01	0.07 ± 0.006	0.07 ± 0.06		

Table A: Limit of detection, procedural blank and accuracy of trace element analysis.
[1] The limit of detection (LOD) is three times the standard deviation of 10 measurements of ultrapure water.
[2] The reported concentration account for the dilution factor (≈ 20).

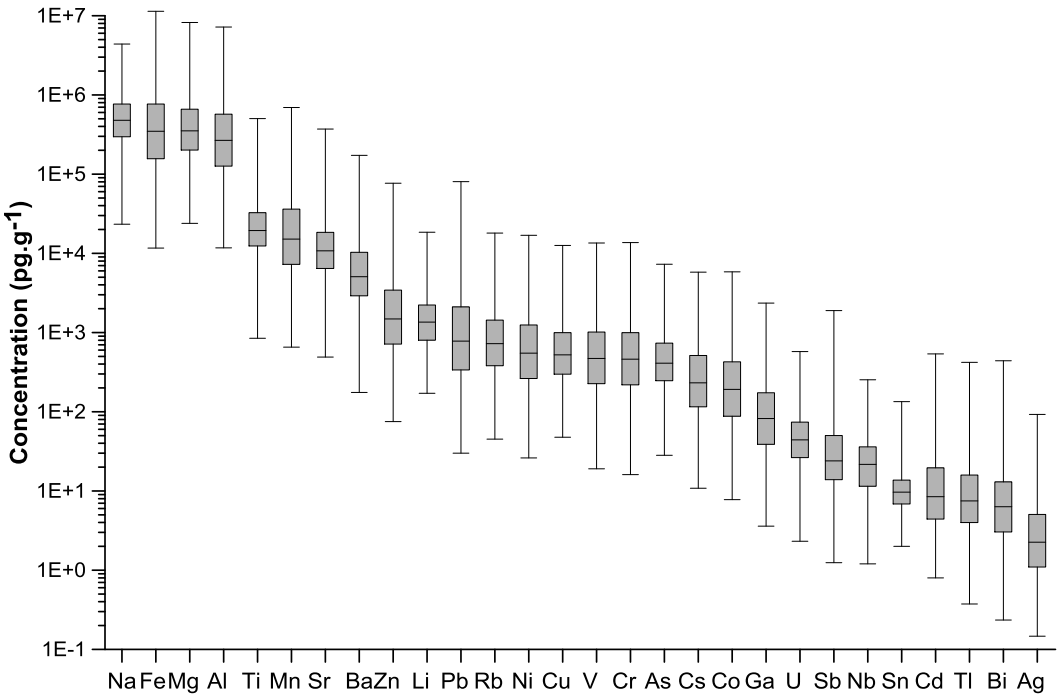

Figure A: Median concentration of the measured trace elements in Puruogangri ice core. The boxes represent the interquartile range (IQR), the whiskers show the dispersion of the data.

Appendix B

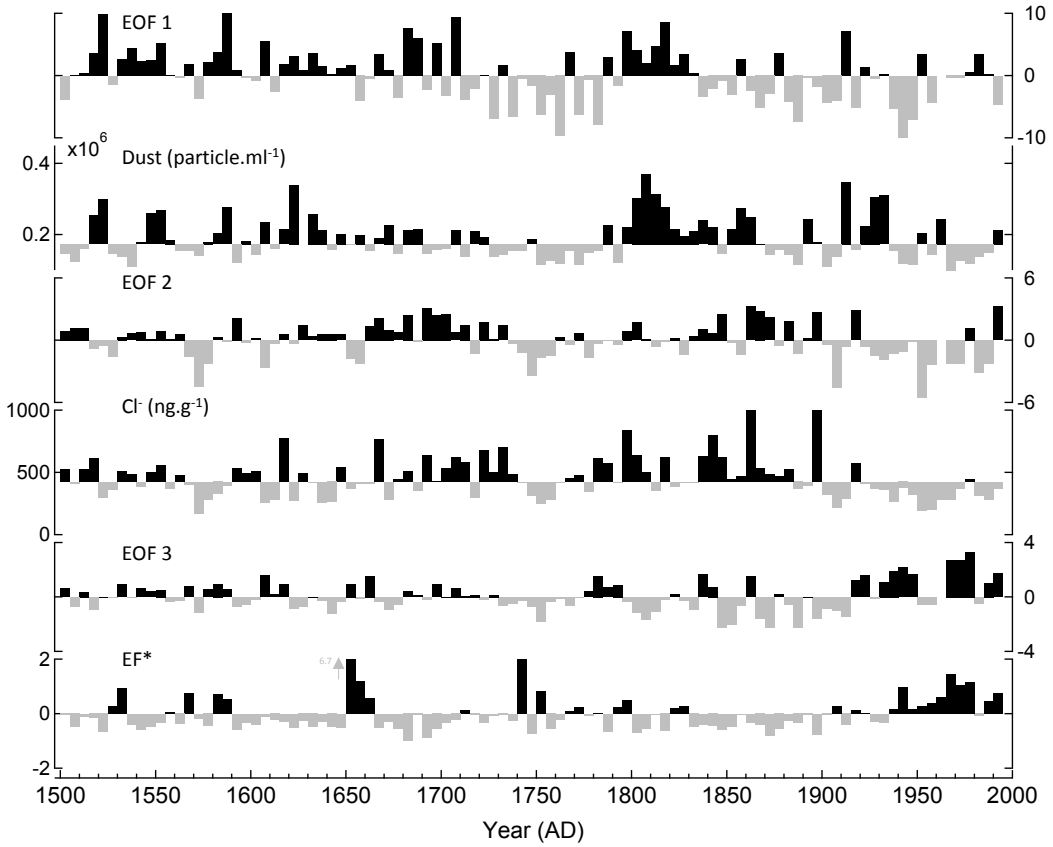

Figure B: 5-year EOF 1 (representing the crustal dust variability), 5-year EOF 2 (representing the evaporitic component of the crustal dust) and 5-year EOF 3 (representing the non-crustal dust component) compared with 5-year median concentration of total dust particles, chloride (salts indicator, Thompson et al., (2006)) and EF* (Ag, Cd, Pb, Sb and Tl EF composite).

Appendix C

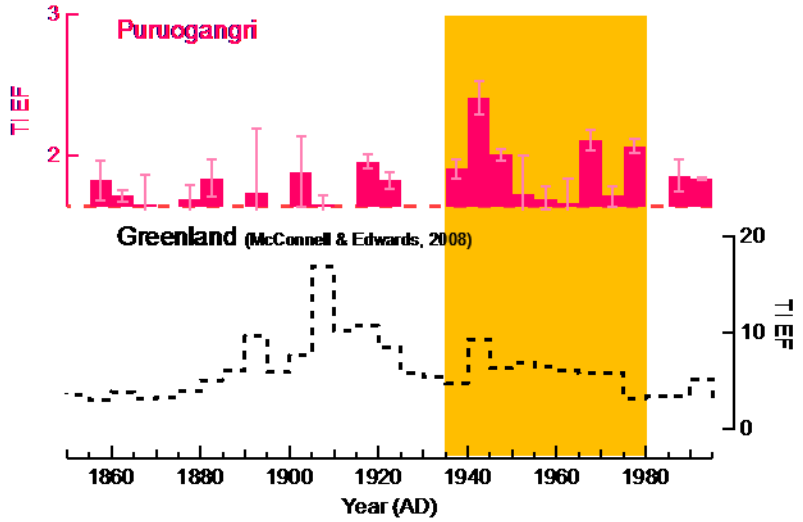

Figure C: Comparison of the 5-year average of annual medians of Tl EF in Puruogangri ice core (pink bars) and the annual Tl EF in the ACT2 core (Greenland, McConnell and Edwards, 2008).

References

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