Supplementary Materials

Reliable ultra trace analysis of Cd, U and Zn concentrations in Greenland snow and ice by using ultraclean methods for contamination control

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Summary

There are 6 pages in the Supplementary Material including 1 figure and 1 table.

Figure S1. Map of Greenland showing the NEEM snow pit and other sampling sites described in the text and Table 2. A total of 133 samples from 22 snow pits were collected by Lai et al. (2017) along a traverse route (solid lines) across northwest and central Greenland (see text). Background map from Google Earth Engine image.



Depth interval (cm)		(Concentra	tion (pg/g	Enrichment factor			
Тор	Bottom	Ba ^a	Cd	U	Zn	Cd	U	Zn
0	4.6	30.2	1.13	0.49	65.8	245	4.3	28
4.6	9.1	33.5	0.77	0.24	42.3	151	1.9	16
9.1	13.7	189	3.14	1.49	132	109	2.1	9
13.7	18.3	28.2	0.99	0.16	48.0	231	1.5	22
18.3	22.9	21.0	0.58	0.19	31.7	180	2.4	19
22.9	27.4	16.1	0.62	0.18	26.9	253	2.9	22
27.4	32.0	8.60	0.48	0.09	21.1	365	2.7	32
32.0	36.6	7.48	0.36	0.08	16.9	314	2.9	29
36.6	41.1	7.70	0.30	0.06	14.9	252	2.2	25
41.1	45.7	4.95	0.19	0.07	14.5	249	3.8	38
45.7	50.3	3.96	0.26	0.05	14.6	423	3.4	47
50.3	54.9	3.51	0.19	0.04	7.13	348	3.2	26
54.9	59.4	2.07	0.07	0.04	6.97	233	5.0	43
59.4	64.0	3.61	0.16	0.05	16.1	293	3.6	57
64.0	68.6	13.4	0.39	0.18	25.7	190	3.5	25
68.6	73.1	33.8	1.11	0.31	41.7	216	2.5	16
73.1	77.7	6.43	0.54	0.12	26.5	548	4.9	53
77.7	82.3	8.82	0.60	0.09	33.6	443	2.8	49
82.3	86.9	8.49	0.39	0.12	20.3	304	3.8	31
86.9	91.4	24.4	1.63	0.32	103	437	3.5	54
91.4	96.0	15.0	0.67	0.21	31.8	292	3.8	27
96.0	100.6	32.5	1.09	0.74	54.3	220	6.1	21
100.6	105.1	33.5	1.06	0.47	42.6	207	3.7	16
105.1	109.7	74.4	1.56	0.78	63.3	137	2.8	11
109.7	114.3	10.0	0.30	0.13	19.3	198	3.6	25
114.3	118.9	11.2	0.44	0.14	21.5	259	3.5	25
118.9	123.4	20.2	1.09	0.21	48.7	353	2.7	31
123.4	128.0	16.2	0.84	0.21	38.1	342	3.5	30

Table S1. Concentrations of Ba, Cd, U, and Zn and crustal enrichment factors for Cd, U, and Zn measured in a continuous series of 70 snow samples collected from a 3.2-m NEEM snow pit in northwest Greenland

 128.0	132.6	7.73	0.44	0.07	21.8	371	2.5	36
 132.6	137.1	3.33	0.37	0.05	25.9	730	4.2	100
 137.1	141.7	5.18	0.38	0.07	33.9	484	3.5	84
 141.7	146.3	4.48	0.36	0.06	29.8	520	3.7	86
 146.3	150.9	6.39	0.41	0.09	30.9	420	3.6	62
 150.9	155.4	17.4	0.63	0.18	34.3	236	2.7	25
 155.4	160.0	108	2.38	0.96	86.1	144	2.4	10
 160.0	164.6	183	2.90	1.59	148	104	2.3	10
 164.6	169.1	187	3.06	1.57	156	107	2.2	11
 169.1	173.7	123	2.36	1.08	109	126	2.3	11
 173.7	178.3	20.2	0.60	0.24	26.1	196	3.2	17
 178.3	182.9	7.41	0.32	0.07	17.7	279	2.7	31
 182.9	187.4	1.80	0.39	0.05	17.8	1410	7.6	127
 187.4	192.0	4.22	0.67	0.06	36.6	1035	3.6	111
 192.0	196.6	8.55	0.40	0.27	31.7	304	8.4	48
 196.6	201.1	8.90	0.77	0.12	65.9	565	3.7	95
 201.1	205.7	19.3	1.03	0.15	51.6	348	2.1	34
 205.7	210.3	52.6	1.99	0.72	84.1	248	3.7	21
 210.3	214.9	34.9	1.03	0.25	45.9	193	1.9	17
 214.9	219.4	27.1	0.60	0.16	23.3	146	1.6	11
 219.4	224.0	20.9	0.49	0.11	94.6	155	1.4	58
 224.0	228.6	19.9	0.63	0.13	31.9	207	1.7	21
 228.6	233.1	24.1	0.84	0.13	63.8	227	1.4	34
 233.1	237.7	20.9	1.44	0.21	47.9	450	2.7	29
 237.7	242.3	16.6	1.02	0.84	45.4	402	13.5	35
 242.3	246.9	3.09	1.04	0.05	41.7	2196	4.2	173
 246.9	251.4	2.48	0.40	0.04	20.9	1069	4.3	108
 251.4	256.0	1.65	0.40	0.04	20.5	1576	6.3	160
 256.0	260.6	12.3	1.92	0.10	104	1027	2.1	109
 260.6	265.1	13.2	1.21	0.11	44.4	601	2.2	43
 265.1	269.7	15.5	1.23	0.14	44.6	520	2.5	37
 269.7	274.3	18.0	1.21	0.15	46.2	440	2.3	33
 274.3	278.9	75.2	5.57	0.69	120	485	2.4	21

278.9	283.4	25.1	1.37	0.22	48.3	358	2.4	25
283.4	288.0	3.05	0.30	0.05	12.9	641	4.6	54
288.0	292.6	2.63	0.42	0.05	17.9	1049	4.8	87
292.6	297.1	4.82	0.52	0.05	29.3	709	2.7	78
297.1	301.7	1.92	0.35	0.04	18.2	1183	5.7	122
301.7	306.3	35.5	1.78	0.62	88.8	329	4.7	32
306.3	310.9	56.0	1.09	0.77	58.8	127	3.7	13
310.9	315.4	75.6	1.80	0.79	71.8	156	2.8	12
315.4	320.0	12.1	1.00	0.10	72.0	543	2.1	77
	Min	1.65	0.07	0.04	6.97	104	1.4	9
	Max	189	5.57	1.59	156	2196	13	173
	Mean	28.2	0.97	0.30	46.0	430	3.5	44
	SD	41.1	0.9	0.4	33.5	376	1.8	37

^a From Kang et al. (2017)

References

- Kang, J. –H.; Hwang, H.; Han, C.; Hur, S. D.; Kim, S. –J.; Hong, S. Pb concentrations and isotopic record preserved in northwest Greenland snow. *Chemosphere* 2017, 187, 294– 301.
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