

Supporting Information

Variability of heavy metal content in soils of typical Tibetan grasslands

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Methods

Soil cation exchange capacity (CEC) was measured by extracting exchangeable cations following the method described by. ¹ Soil pH was determined using a soil to water ratio of 1 : 2.5 with a pH-meter.. Soil organic carbon was qualified according to the K₂Cr₂O₇ oxidation titration method. ² Soil water content was determined by oven-drying the soil samples at 105°C for 24 h. Soil Clay content Clay content was measured by the pipette method after soil organic matter oxidation with H₂O₂ and dispersion with sonication. ³

References

1. K. P. Kitsopoulos, *Clays and clay minerals*, 1999, 47, 688-696.
2. A. Walkley, *Soil Science*, 1947, 63, 251-264.
3. P. R. Day, *Methods of soil analysis. Part 1. Physical and mineralogical properties, including statistics of measurement and sampling*, 1965, 545-567.

Table S1 Site information and soil physic-chemical properties of 23 sites from the Tibetan Plateau (TP). SWC, soil water; SOC, soil organic carbon; Clay, percentage of clay component of soil texture; CEC, cation exchange capacity; Precipitation, local average annual precipitation. 1, 2, 3 and 4 represents replicated samples from the same area. Climate data were collected from China Meteorological Bureau.

Site ID	Location	pH	SWC	SOC	Clay	CEC	Precipitation	Humidity	Latitude	Longitude	Altitude
		H ₂ O	(%)	(g kg ⁻¹)	(%)	(cmol kg ⁻¹)	(mm)	(%)	(°N)	(°E)	(m)
1	Nyingchi-1	4.86	69.31	18.16	53.46	24.00	650	65	29°36'	94°36'	4194
2	Nyingchi-2	5.45	43.03	14.72	64.53	13.00	650	71	29°36'	94°38'	4510
3	Nyingchi-3	5.40	52.75	15.28	61.83	30.35	650	68	29°52'	92°32'	4187
4	Mila Mountains	4.86	42.93	10.58	62.37	32.06	808	67	29°49'	92°21'	4947
5	Yangpachen	6.32	20.48	5.97	59.56	13.58	400	62	30°10'	90°35'	4523
6	Damxung	5.73	28.48	11.42	58.97	21.94	457	49	30°31'	91°18'	4361
7	Nagchu-1	6.24	28.97	14.53	55.91	21.40	400	57	31°17'	91°48'	4669
8	Nagchu-2	6.31	28.43	12.49	57.44	45.43	400	65	31°38'	92°00'	4598
9	Nam Co	7.44	5.98	2.98	65.42	5.17	410	49	30°48'	91°06'	4769
10	Baingoin -1	7.74	8.70	2.46	54.35	11.55	308	32	31°17'	90°20'	4646
11	Baingoin -2	7.21	6.28	2.33	1.94	4.71	308	22	31°28'	89°54'	4762
12	Baingoin -3	8.14	4.92	2.02	8.17	4.17	308	49	31°36'	89°36'	4596
13	Nyima-1	7.67	9.76	3.11	15.36	14.17	150	30	31°37'	88°52'	4641
14	Nyima-2	7.92	6.82	3.09	15.61	9.69	150	28	31°54'	86°16'	4767
15	Gerze-1	8.18	3.09	0.82	40.26	4.83	189	10	32°12'	84°29'	4474
16	Gerze2	8.73	5.32	1.94	32.38	5.34	189	21	32°17'	84°06'	4445
17	Cuoqin -1	7.99	5.35	1.65	51.29	3.46	100	11	32°18'	85°07'	4719
18	Cuoqin -2	6.83	4.75	2.81	47.28	8.80	100	36	30°50'	85°06'	4726
19	Cuoqin -3	6.88	8.10	2.42	53.25	8.26	100	34	30°34'	85°24'	4806
20	Cuoqin -4	7.43	9.02	4.73	57.53	12.86	100	10	30°09'	85°22'	5375

21	Saga	8.06	13.28	3.70	69.88	9.00	220	34	29°05'	85°23'	4704
22	Tingri	7.50	14.57	5.93	58.97	21.57	319	46	28°51'	87°20'	4915
23	Shigatse	8.03	9.22	1.03	67.23	6.30	300	77	29°19'	89°10'	3834

Figure S1 Geographic location of sampling sites (n = 23) across the Tibetan Plateau (TP). The map was generated using ArcGIS 10.0 (<http://www.esri.com/software/arcgis/>). Numerical information is summarized in the Table S1.

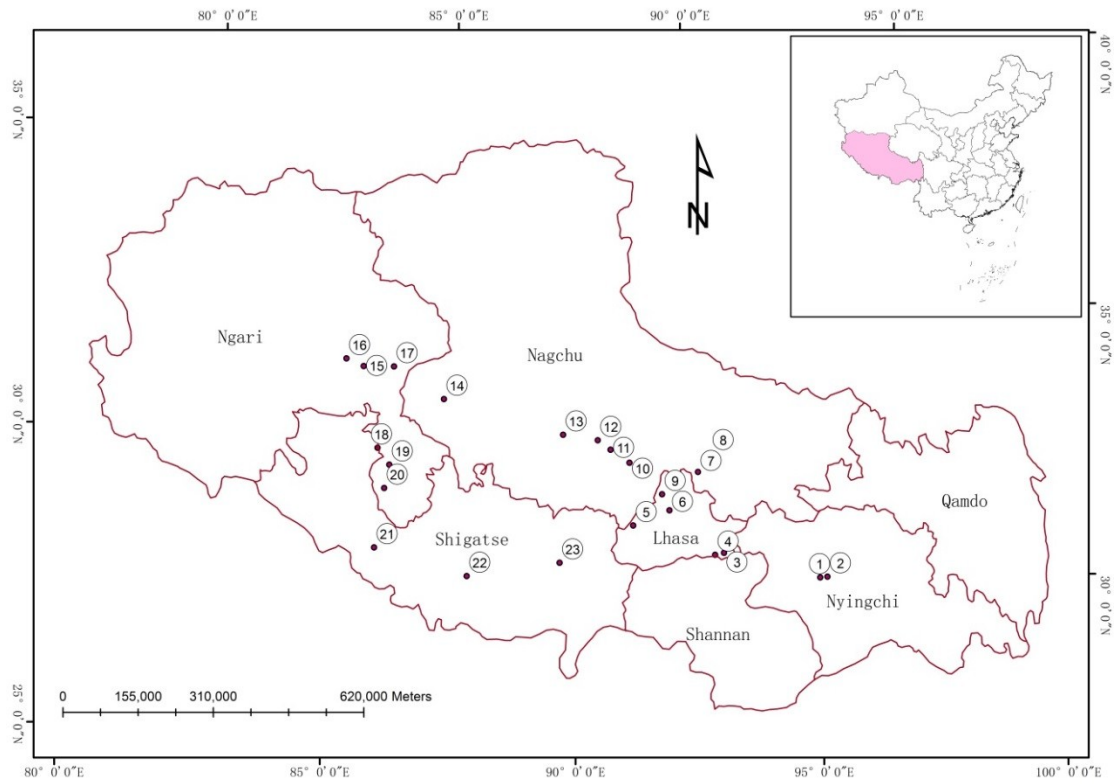


Figure S2 Concentrations of heavy metals in the topsoils and subsoils of the Tibetan Plateau (mg kg^{-1}). Numerical information is summarized in the Table S1.

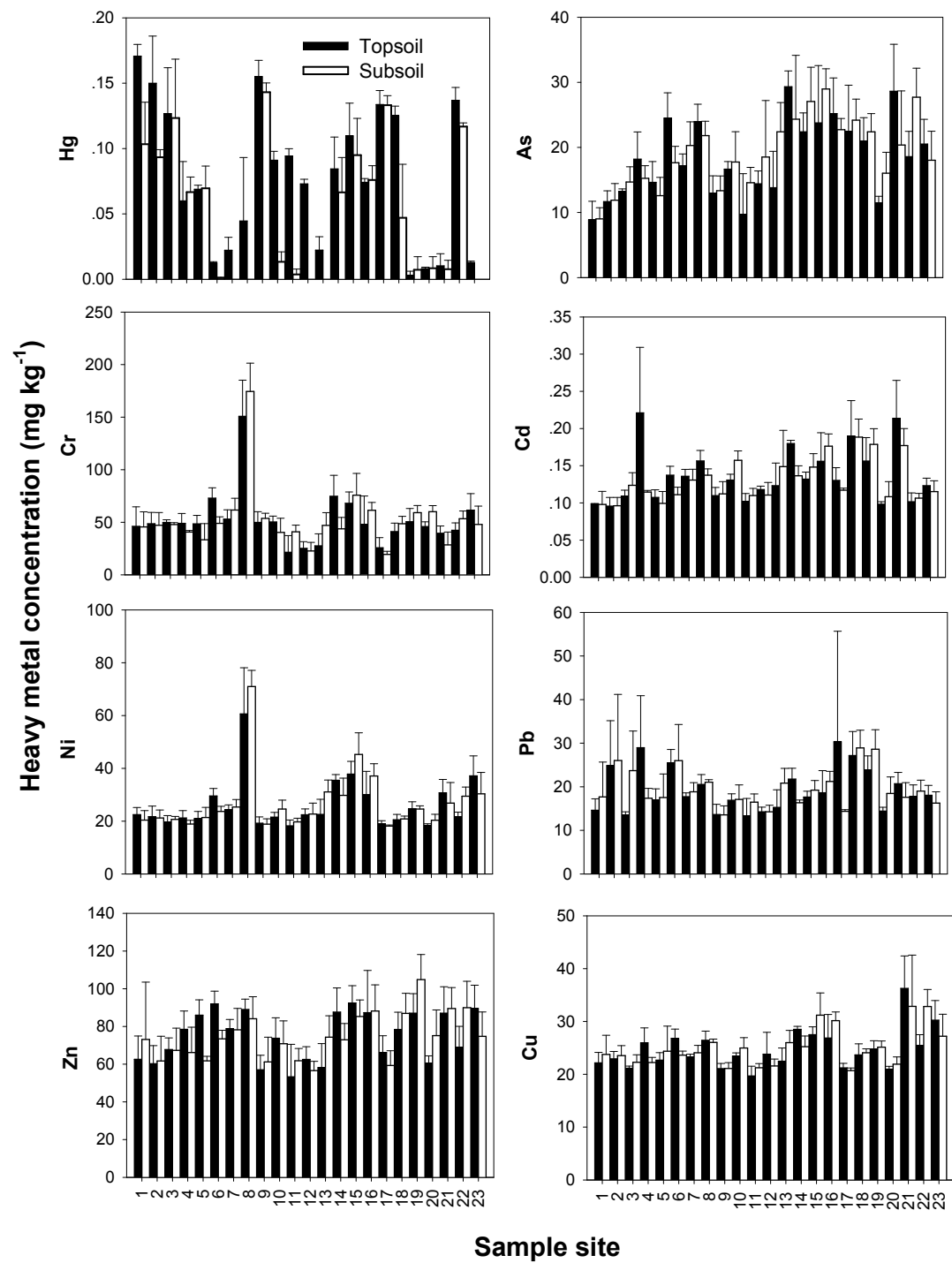


Figure S3 Relationship between average annual precipitation and longitude (n=23).
Pearson's R^2 and P values for the correlation are given in the Figure.

