

# Supplementary Materials

Sixuan Li <sup>1</sup>, Youyi Ni <sup>2,\*</sup> and Qiuju Guo <sup>1,\*</sup>

**Table S1.** Detailed information of compiled surface soils.

Sample ID	Sampling Year	Depth (cm)	Latitude (°N)	Longitude (°E)	<sup>239+240</sup> Pu Concentration (mBq g <sup>-1</sup> )	<sup>240</sup> Pu/ <sup>239</sup> Pu Atom Ratio	Area
DL-G01	2009	5	38.91	121.43	0.211 ± 0.032	0.215 ± 0.07	Outer
DL-G02	2009	5	38.91	121.36	0.131 ± 0.006	0.205 ± 0.014	Outer
DL-G03	2009	5	38.91	121.36	0.134 ± 0.008	0.187 ± 0.02	Outer
YK-G01	2009	5	40.68	122.35	0.078 ± 0.017	0.181 ± 0.086	Outer
YK-G02	2009	5	40.64	122.47	0.125 ± 0.016	0.237 ± 0.058	Outer
AS-G01	2009	5	41.17	122.92	0.092 ± 0.003	0.194 ± 0.012	Outer
AS-G02	2009	5	41.17	122.91	0.167 ± 0.015	0.153 ± 0.012	Outer
PJ-G01	2009	5	40.98	122	0.121 ± 0.007	0.21 ± 0.025	Outer
PJ-G02	2009	5	41.04	121.97	0.092 ± 0.002	0.166 ± 0.007	Outer
JZ-G01	2009	5	41.11	121.31	0.1 ± 0.012	0.183 ± 0.045	Outer
JZ-G02	2009	5	41.02	121.31	0.223 ± 0.02	0.2 ± 0.026	Outer
JZ-G03	2009	5	41	121.34	0.023 ± 0.003	0.17 ± 0.041	Outer
YK-H01	2009	5	40.53	122.36	0.363 ± 0.031	0.192 ± 0.032	Outer
JZ-H01	2009	5	40.93	121.4	0.23 ± 0.018	0.192 ± 0.033	Outer
DL-H01	2009	5	38.89	121.35	0.038 ± 0.006	0.103 ± 0.033	Outer
DL-Z01	2009	5	38.91	121.43	0.408 ± 0.02	0.173 ± 0.034	Outer
DL-Z02	2009	5	38.89	121.35	0.938 ± 0.035	0.192 ± 0.016	Outer
YK-Z01	2009	5	40.62	122.46	0.64 ± 0.054	0.191 ± 0.034	Outer
AS-Z01	2009	5	41.07	123.02	0.072 ± 0.012	0.205 ± 0.06	Outer
PJ-Z01	2009	5	41.13	121.9	0.084 ± 0.009	0.245 ± 0.052	Outer
JZ-Z01	2009	5	41.06	121.17	0.027 ± 0.007	0.144 ± 0.077	Outer
DL-1	2014	5	38.9	121.35	0.929 ± 0.021	0.18 ± 0.008	Outer
DL-2	2014	5	38.9	121.35	1.125 ± 0.024	0.184 ± 0.009	Outer
DL-3	2014	10	38.895	121.346	0.995 ± 0.041	0.187 ± 0.015	Outer
DL-4	2014	10	38.895	121.346	1.178 ± 0.034	0.177 ± 0.008	Outer
DL-5	2014	10	38.895	121.346	1.174 ± 0.029	0.176 ± 0.009	Outer
DL-6	2014	10	38.895	121.346	1.159 ± 0.037	0.177 ± 0.012	Outer
LYG-1	2014	5	34.68	119.32	0.604 ± 0.015	0.181 ± 0.011	Outer
LYG-2	2014	5	34.7	119.46	0.77 ± 0.024	0.177 ± 0.014	Outer
LYG-3	2014	5	34.7	119.46	0.37 ± 0.01	0.202 ± 0.012	Outer
LYG-4	2014	5	34.76	119.46	0.54 ± 0.019	0.182 ± 0.017	Outer
Sample1	-	5	39.53	122.48	0.131 ± 0.01	0.169 ± 0.012	Outer
Sample2	-	5	41.74	123.56	0.089 ± 0.009	0.196 ± 0.019	Outer
Sample3	-	5	39.01	117.87	0.011 ± 0.002	0.225 ± 0.034	Outer
Sample4	-	5	36.86	116.85	0.081 ± 0.009	0.186 ± 0.021	Outer
Sample5	-	5	35.56	117.04	0.09 ± 0.008	0.158 ± 0.014	Outer
Sample6	-	5	33.93	118.03	0.088 ± 0.006	0.179 ± 0.012	Outer
Sample7	-	5	30.16	119.4	0.07 ± 0.008	0.194 ± 0.021	Outer
Sample8	-	5	23.88	115.74	0.07 ± 0.008	0.193 ± 0.022	Outer
Sample9	-	5	24.53	116.72	0.165 ± 0.014	0.186 ± 0.016	Outer
Sample10	-	5	25.78	117.58	0.077 ± 0.008	0.214 ± 0.023	Outer
Sample11	-	5	27.03	118.31	0.084 ± 0.006	0.171 ± 0.011	Outer

Sample12	-	5	27.92	118.38	$0.266 \pm 0.014$	$0.196 \pm 0.01$	Outer
Sample13	-	5	30.93	118.26	$0.158 \pm 0.009$	$0.214 \pm 0.012$	Outer
Sample14	-	5	35.98	119.52	$0.274 \pm 0.015$	$0.174 \pm 0.01$	Outer
Sample15	-	5	36.08	118.94	$0.067 \pm 0.008$	$0.174 \pm 0.021$	Outer
Sample16	-	5	41.8	120.76	$0.088 \pm 0.01$	$0.174 \pm 0.02$	Outer
Sample17	-	5	40.55	124.25	$0.057 \pm 0.008$	$0.174 \pm 0.023$	Outer
Sample18	-	5	25.1	116.11	$0.162 \pm 0.008$	$0.168 \pm 0.008$	Outer
Sample19	-	5	26.47	116.48	$0.096 \pm 0.007$	$0.204 \pm 0.014$	Outer
Sample20	-	5	27.5	117.16	$0.133 \pm 0.007$	$0.182 \pm 0.01$	Outer
#3	2012	5	21.68	108.46	$0.198 \pm 0.038$	$0.182 \pm 0.009$	Outer
#15	2012	5	21.63	108.51	$0.159 \pm 0.03$	$0.172 \pm 0.01$	Outer
#23	2012	5	21.71	108.44	$0.136 \pm 0.055$	$0.176 \pm 0.014$	Outer
#26	2012	5	21.75	108.51	$0.194 \pm 0.025$	$0.172 \pm 0.009$	Outer
#29	2012	5	21.55	108.28	$0.272 \pm 0.04$	$0.186 \pm 0.013$	Outer
S15103	2014	30	30.9	119.4	$0.1 \pm 0.013$	$0.214 \pm 0.058$	Outer
S15021	2014	30	40.4	116.8	$0.031 \pm 0.004$	$0.224 \pm 0.051$	Outer
S16033	2014	5	25.7	119.3	$0.142 \pm 0.017$	$0.193 \pm 0.047$	Outer
S16049	2014	5	25.1	116.4	$0.07 \pm 0.009$	$0.204 \pm 0.049$	Outer
S16055	2014	5	27.6	118.9	$0.09 \pm 0.014$	$0.181 \pm 0.057$	Outer
S16053	2014	5	26.8	118.2	$0.019 \pm 0.004$	$0.159 \pm 0.06$	Outer
S16031	2014	5	26.8	119.6	$0.188 \pm 0.023$	$0.219 \pm 0.055$	Outer
S16035	2014	5	24.8	118.4	$0.063 \pm 0.006$	$0.217 \pm 0.044$	Outer
S16051	2014	5	25.9	117.3	$0.056 \pm 0.01$	$0.151 \pm 0.053$	Outer
S16037	2014	5	24.1	117.7	$0.084 \pm 0.009$	$0.214 \pm 0.047$	Outer
S16039	2014	5	23.6	116.7	$0.049 \pm 0.006$	$0.204 \pm 0.049$	Outer
S16045	2014	5	23.8	114.7	$0.116 \pm 0.015$	$0.154 \pm 0.034$	Outer
S16043	2014	5	22.9	114.5	$0.013 \pm 0.001$	$0.17 \pm 0.04$	Outer
S17023	2014	5	22.7	113	$0.06 \pm 0.007$	$0.157 \pm 0.033$	Outer
S17027	2014	5	21.6	111.1	$0.028 \pm 0.004$	$0.151 \pm 0.039$	Outer
S17021	2014	5	23.9	112.9	$0.121 \pm 0.016$	$0.191 \pm 0.049$	Outer
S16041	2014	5	23	115.7	$0.05 \pm 0.006$	$0.197 \pm 0.044$	Outer
S17036	2014	5	22.9	109.4	$0.07 \pm 0.009$	$0.192 \pm 0.047$	Outer
S17032	2014	5	22	108.4	$0.036 \pm 0.004$	$0.217 \pm 0.052$	Outer
S17031	2014	5	21.8	108.9	$0.074 \pm 0.009$	$0.165 \pm 0.039$	Outer
S17039	2014	5	23	111	$0.003 \pm 0$	$0.136 \pm 0$	Outer
S15032	2014	30	38.7	115.7	$0.127 \pm 0.015$	$0.176 \pm 0.043$	Outer
S14151	2014	5	41.5	116.7	$0.265 \pm 0.034$	$0.221 \pm 0.057$	Outer
S14148	2014	5	42	117.8	$0.213 \pm 0.029$	$0.157 \pm 0.043$	Outer
S14149	2014	5	41.9	117.3	$0.161 \pm 0.021$	$0.209 \pm 0.053$	Outer
S15024	2014	30	40.4	118.8	$0.215 \pm 0.027$	$0.185 \pm 0.044$	Outer
S15027	2014	30	39.8	118.4	$0.143 \pm 0.018$	$0.175 \pm 0.043$	Outer
S14152	2014	5	41.2	116.2	$0.67 \pm 0.088$	$0.171 \pm 0.044$	Outer
S14153	2014	5	40.9	116	$0.312 \pm 0.044$	$0.177 \pm 0.05$	Outer
S15099	2014	30	31.9	121	$0.012 \pm 0.001$	$0.194 \pm 0.048$	Outer
S15097	2014	30	32.3	120	$0.002 \pm 0$	$0.272 \pm 0$	Outer
S15075	2014	30	33.6	118.7	$0.095 \pm 0.011$	$0.173 \pm 0.039$	Outer
S15076	2014	5	33.9	118	$0.097 \pm 0.014$	$0.168 \pm 0.049$	Outer
S15073	2014	30	33.6	120.2	$0.08 \pm 0.01$	$0.181 \pm 0.048$	Outer
S16061	2014	5	28.4	117.7	$0.005 \pm 0.001$	$0.181 \pm 0.06$	Outer
C14076	2014	5	39.5	121.9	$0.125 \pm 0.018$	$0.181 \pm 0.048$	Outer
S14113	2014	5	39.5	122.5	$0.129 \pm 0.017$	$0.161 \pm 0.038$	Outer

S14114	2014	5	39.5	121.9	$0.151 \pm 0.019$	$0.184 \pm 0.045$	Outer
S14115	2014	5	39.8	121.9	$0.105 \pm 0.013$	$0.188 \pm 0.045$	Outer
S14112	2014	5	39.7	122.9	$0.085 \pm 0.01$	$0.209 \pm 0.048$	Outer
S14110	2014	5	39.9	124	$0.009 \pm 0.001$	$0.136 \pm 0.023$	Outer
S14111	2014	5	39.9	123.5	$0.151 \pm 0.021$	$0.16 \pm 0.044$	Outer
S14107	2014	5	40.8	124.7	$0.189 \pm 0.003$	$0.179 \pm 0.007$	Outer
S14109	2014	5	40.2	124.3	$0.032 \pm 0.005$	$0.163 \pm 0.049$	Outer
S14119	2014	5	41.4	123.3	$0.096 \pm 0.015$	$0.163 \pm 0.047$	Outer
S14116	2014	5	40.3	122.2	$0.048 \pm 0.006$	$0.163 \pm 0.037$	Outer
S14117	2014	5	40.7	122.5	$0.024 \pm 0.003$	$0.163 \pm 0.037$	Outer
S14144	2014	5	42.5	120.1	$0.076 \pm 0.014$	$0.187 \pm 0.067$	Outer
S14146	2014	5	42.3	118.7	$0.047 \pm 0.009$	$0.184 \pm 0.072$	Outer
S14147	2014	5	42.1	118.2	$0.139 \pm 0.019$	$0.189 \pm 0.052$	Outer
S14145	2014	5	42.4	119.4	$0.196 \pm 0.038$	$0.204 \pm 0.079$	Outer
S14141	2014	5	43.1	121.1	$0.046 \pm 0.009$	$0.175 \pm 0.07$	Outer
S14143	2014	5	42.6	120.6	$0.168 \pm 0.032$	$0.167 \pm 0.062$	Outer
S15040	2014	30	37.7	117.7	$0.137 \pm 0.017$	$0.177 \pm 0.044$	Outer
S15038	2014	30	37.5	116.5	$0.142 \pm 0.016$	$0.177 \pm 0.039$	Outer
S15069	2014	30	35.4	118.7	$0.061 \pm 0.008$	$0.202 \pm 0.052$	Outer
S15071	2014	30	34.6	119.1	$0.123 \pm 0.017$	$0.213 \pm 0.063$	Outer
S15050	2014	30	36.1	119.3	$0.093 \pm 0.015$	$0.18 \pm 0.057$	Outer
S15042	2014	30	37	118.6	$0.12 \pm 0.014$	$0.175 \pm 0.04$	Outer
S15043	2014	5	37	119.2	$0.128 \pm 0.019$	$0.192 \pm 0.057$	Outer
S15047	2014	30	36.9	121.3	$0.12 \pm 0.016$	$0.222 \pm 0.06$	Outer
S15044	2014	30	37.2	120	$0.016 \pm 0.001$	$0.211 \pm 0.038$	Outer
S15048	2014	30	37.6	120.7	$0.127 \pm 0.014$	$0.195 \pm 0.041$	Outer
S15051	2014	30	36	118.5	$0.097 \pm 0.011$	$0.183 \pm 0.04$	Outer
S15029	2014	30	39	117.9	$0.076 \pm 0.009$	$0.187 \pm 0.046$	Outer
S16021	2014	30	30.2	119.9	$0.029 \pm 0.004$	$0.192 \pm 0.047$	Outer
S16057	2014	5	28.5	119.4	$0.223 \pm 0.029$	$0.184 \pm 0.047$	Outer
S16024	2014	5	29.6	121.4	$0.139 \pm 0.006$	$0.162 \pm 0.017$	Outer
S16058	2014	5	28.9	119.1	$0.135 \pm 0.021$	$0.211 \pm 0.064$	Outer
S16029	2014	5	27.5	120.4	$0.219 \pm 0.011$	$0.179 \pm 0.021$	Outer
ShandongQing zhou	2007	2	36.68	118.48	$0.013 \pm 0.001$	$0.206 \pm 0.02$	Outer
Luojiashan	2007	2	30.53	114.36	$0.079 \pm 0.003$	$0.191 \pm 0.013$	Outer
Jiufengshan	2007	2	30.51	114.5	$0.037 \pm 0.001$	$0.187 \pm 0.013$	Outer
86	2004	-	33.76	105.68	$0.012 \pm 0.004$	$0.242 \pm 0.077$	Outer
S111	2013	20	34.57	105.52	$0.068 \pm 0.018$	$0.187 \pm 0.049$	Outer
563	2004	-	32.94	109.7	$0.024 \pm 0.004$	$0.164 \pm 0.025$	Outer
18	2004	-	46.87	131.24	$0.193 \pm 0.019$	$0.195 \pm 0.02$	Outer
21	2004	-	45.86	126.07	$0.177 \pm 0.019$	$0.182 \pm 0.02$	Outer
589	2004	-	43.26	129.61	$0.313 \pm 0.023$	$0.19 \pm 0.014$	Outer
613	2004	-	43.24	123.75	$0.168 \pm 0.015$	$0.178 \pm 0.015$	Outer
S14068	2014	20	48.87	126.12	$0.092 \pm 0.004$	$0.232 \pm 0.01$	Outer
S14073	2014	20	47.35	126.96	$0.087 \pm 0.009$	$0.188 \pm 0.019$	Outer
S14083	2014	20	47.38	129.98	$0.112 \pm 0.008$	$0.172 \pm 0.013$	Outer
S14088	2014	20	45.22	130.63	$0.207 \pm 0.024$	$0.175 \pm 0.02$	Outer
59	2004	-	30.47	111.2	$0.074 \pm 0.009$	$0.178 \pm 0.022$	Outer
76	2004	-	30.74	114.89	$0.059 \pm 0.013$	$0.194 \pm 0.044$	Outer
419	2004	-	25.52	112.3	$0.123 \pm 0.021$	$0.171 \pm 0.03$	Outer

422	2004	-	29.54	109.67	$0.062 \pm 0.013$	$0.182 \pm 0.037$	Outer
427	2004	-	27.95	109.6	$0.287 \pm 0.045$	$0.172 \pm 0.027$	Outer
429	2004	-	26.73	113.01	$0.112 \pm 0.016$	$0.174 \pm 0.025$	Outer
435	2004	-	29.08	111.06	$0.242 \pm 0.027$	$0.173 \pm 0.019$	Outer
436	2004	-	27.14	111.1	$0.127 \pm 0.02$	$0.196 \pm 0.031$	Outer
437	2004	-	27.19	109.01	$0.097 \pm 0.015$	$0.18 \pm 0.027$	Outer
439	2004	-	30.33	109.14	$0.199 \pm 0.047$	$0.189 \pm 0.044$	Outer
453	2004	-	31.53	111.59	$0.092 \pm 0.011$	$0.162 \pm 0.02$	Outer
456	2004	-	31.8	110.05	$0.041 \pm 0.008$	$0.148 \pm 0.028$	Outer
510	2004	-	33.73	115.42	$0.108 \pm 0.016$	$0.158 \pm 0.024$	Outer
513	2004	-	33.12	111.76	$0.043 \pm 0.004$	$0.164 \pm 0.016$	Outer
521	2004	-	34.54	111.6	$0.068 \pm 0.009$	$0.208 \pm 0.028$	Outer
539	2004	-	33.59	114.01	$0.074 \pm 0.024$	$0.185 \pm 0.06$	Outer
34	2004	-	41.92	118.71	$0.168 \pm 0.034$	$0.192 \pm 0.038$	Outer
368	2004	-	27.51	115.42	$0.042 \pm 0.005$	$0.156 \pm 0.02$	Outer
406	2004	-	33.45	117.02	$0.049 \pm 0.014$	$0.199 \pm 0.056$	Outer
407	2004	-	30.93	118.26	$0.158 \pm 0.025$	$0.214 \pm 0.034$	Outer
553	2004	-	35.33	117.93	$0.079 \pm 0.016$	$0.194 \pm 0.04$	Outer
618	2004	-	29.15	116.77	$0.133 \pm 0.027$	$0.188 \pm 0.039$	Outer
BJ-23	2009	-	40.01	116.42	$0.018 \pm 0.004$	$0.237 \pm 0.048$	Outer
S14037	2014	20	43.61	116.66	$0.017 \pm 0.005$	$0.239 \pm 0.068$	Outer
S14044	2014	20	45.05	117.32	$0.641 \pm 0.058$	$0.167 \pm 0.015$	Outer
S14048	2014	20	45.57	118.28	$0.077 \pm 0.004$	$0.189 \pm 0.01$	Outer
S14054	2014	20	45.21	121.57	$0.247 \pm 0.032$	$0.197 \pm 0.026$	Outer
S14063	2014	20	48.47	123.8	$0.016 \pm 0.002$	$0.189 \pm 0.018$	Outer
S14140	2014	20	43.3	121.54	$0.011 \pm 0.001$	$0.204 \pm 0.02$	Outer
S14148	2014	20	41.98	117.77	$0.154 \pm 0.02$	$0.177 \pm 0.023$	Outer
348	2004	-	23.13	106.42	$0.112 \pm 0.019$	$0.181 \pm 0.031$	Outer
199	2004	-	23.34	103.54	$0.073 \pm 0.008$	$0.188 \pm 0.02$	Outer
255	2004	-	23.48	100.96	$0.046 \pm 0.006$	$0.157 \pm 0.022$	Outer
181	2004	-	24.07	101.99	$0.033 \pm 0.003$	$0.173 \pm 0.016$	Outer
48	2004	-	24.32	99.04	$0.04 \pm 0.004$	$0.155 \pm 0.014$	Outer
351	2004	-	24.54	105.68	$0.031 \pm 0.004$	$0.185 \pm 0.024$	Outer
191	2004	-	24.63	103.74	$0.035 \pm 0.005$	$0.2 \pm 0.027$	Outer
358	2004	-	25.03	114.15	$0.072 \pm 0.018$	$0.177 \pm 0.043$	Outer
345	2004	-	25.09	104.9	$0.074 \pm 0.007$	$0.195 \pm 0.018$	Outer
353	2004	-	25.22	107.5	$0.134 \pm 0.026$	$0.188 \pm 0.037$	Outer
122	2004	-	25.45	102.67	$0.052 \pm 0.004$	$0.169 \pm 0.014$	Outer
331	2004	-	26.32	105.65	$0.173 \pm 0.031$	$0.174 \pm 0.032$	Outer
230	2004	-	26.35	100.21	$0.057 \pm 0.013$	$0.199 \pm 0.046$	Outer
314	2004	-	26.75	107.19	$0.107 \pm 0.018$	$0.177 \pm 0.03$	Outer
496	2004	-	27.05	101.97	$0.034 \pm 0.004$	$0.209 \pm 0.027$	Outer
336	2004	-	27.09	103.82	$0.063 \pm 0.006$	$0.175 \pm 0.016$	Outer
495	2004	-	27.83	105.75	$0.115 \pm 0.031$	$0.193 \pm 0.053$	Outer
499	2004	-	27.92	104.54	$0.089 \pm 0.021$	$0.192 \pm 0.046$	Outer
490	2004	-	28.41	102.22	$0.157 \pm 0.015$	$0.176 \pm 0.016$	Outer
290	2004	-	28.57	107.62	$0.071 \pm 0.006$	$0.189 \pm 0.015$	Outer
SQZ-22	2009	-	29.64	91.04	$0.019 \pm 0.002$	$0.149 \pm 0.019$	Outer
SQZ-17	2009	-	29.79	93.84	$0.068 \pm 0.01$	$0.185 \pm 0.027$	Outer
80	2004	-	31.19	104.07	$0.141 \pm 0.019$	$0.186 \pm 0.025$	Outer
68	2004	-	31.85	107.72	$0.088 \pm 0.027$	$0.177 \pm 0.054$	Outer

Beijing-1	1990	5	39.9	116.41	$0.149 \pm 0.015$	-	Outer
Beijing-2	1990	5	39.9	116.41	$0.066 \pm 0.008$	-	Outer
Jinang-1	1990	5	36.65	117	$0.174 \pm 0.015$	-	Outer
Jinang-2	1990	5	36.65	117	$0.119 \pm 0.021$	-	Outer
DK	2007	2	31.1	112.81	$0.358 \pm 0.021$	$0.172 \pm 0.02$	Outer
GLZ	2007	2	31.99	112.03	$0.38 \pm 0.016$	$0.208 \pm 0.014$	Outer
2#	2010	2	34.44	115.65	$0.122 \pm 0.002$	$0.202 \pm 0.031$	Outer
DL-01	2009	2	38.91	121.43	$0.466 \pm 0.054$	$0.213 \pm 0.038$	Outer
DL-02	2009	2	38.89	121.35	$0.477 \pm 0.021$	$0.184 \pm 0.015$	Outer
GY	2011	2	26.66	106.67	$0.316 \pm 0.012$	$0.191 \pm 0.007$	Outer
WL	2011	2	29.52	107.85	$1.3 \pm 0.05$	$0.181 \pm 0.008$	Outer
ZX	2011	2	30.53	107.85	$0.171 \pm 0.008$	$0.185 \pm 0.011$	Outer
QS	2014	2	30.44	120.95	$0.75 \pm 0.05$	$0.19 \pm 0.01$	Outer
CD	2015	2	42.4	117.23	$0.37 \pm 0.06$	$0.19 \pm 0.03$	Outer
BJ-1	2007	2	39.6	115.9	$0.687 \pm 0.135$	$0.179 \pm 0.012$	Outer
BJ-2	2007	2	40.14	116.11	$0.046 \pm 0.011$	$0.172 \pm 0.027$	Outer
ChengduZhulin-1	2007	2	30.37	104.15	$0.04 \pm 0.006$	-	Outer
ChengduZhulin-2	2007	2	30.74	104.15	-	$0.184 \pm 0.021$	Outer
1-A uranium mine	2015	3	22.85	107.21	$0.242 \pm 0.022$	$0.173 \pm 0.012$	Outer
2-A uranium mine	2015	3	22.85	107.21	$0.373 \pm 0.025$	$0.185 \pm 0.011$	Outer
4-A uranium mine	2015	3	22.85	107.21	$0.134 \pm 0.012$	$0.181 \pm 0.023$	Outer
5-A uranium mine	2015	3	22.85	107.21	$0.29 \pm 0.01$	$0.166 \pm 0.015$	Outer
6-A uranium mine	2015	3	22.85	107.21	$0.157 \pm 0.01$	$0.18 \pm 0.025$	Outer
8-A uranium mine	2015	3	22.85	107.21	$0.122 \pm 0.005$	$0.228 \pm 0.017$	Outer
9-A uranium mine	2015	3	22.85	107.21	$0.167 \pm 0.017$	$0.179 \pm 0.019$	Outer
10-A uranium mine	2015	3	22.85	107.21	$0.143 \pm 0.005$	$0.191 \pm 0.031$	Outer
11-B uranium mine	2015	3	26.03	110.66	$0.071 \pm 0.015$	$0.192 \pm 0.015$	Outer
12-B uranium mine	2015	3	26.03	110.66	$0.122 \pm 0.028$	$0.176 \pm 0.009$	Outer
14-B uranium mine	2015	3	26.03	110.66	$0.067 \pm 0.005$	$0.193 \pm 0.014$	Outer
16-B uranium mine	2015	3	26.03	110.66	$0.117 \pm 0.006$	$0.181 \pm 0.011$	Outer
18-B uranium mine	2015	3	26.03	110.66	$0.114 \pm 0.007$	$0.227 \pm 0.022$	Outer
19-B uranium mine	2015	3	26.03	110.66	$0.117 \pm 0.011$	$0.211 \pm 0.021$	Outer
21-solid waste management center	2015	3	22.69	109.2	$0.08 \pm 0.007$	$0.231 \pm 0.018$	Outer

22-solid waste management center	2015	3	22.69	109.2	$0.109 \pm 0.009$	$0.22 \pm 0.032$	Outer
23-solid waste management center	2015	3	22.69	109.2	$0.149 \pm 0.01$	$0.206 \pm 0.024$	Outer
24-solid waste management center	2015	3	22.69	109.2	$0.107 \pm 0.012$	$0.229 \pm 0.015$	Outer
25-solid waste management center	2015	3	22.69	109.2	$0.114 \pm 0.005$	$0.199 \pm 0.013$	Outer
26-solid waste management center	2015	3	22.69	109.2	$0.089 \pm 0.007$	$0.214 \pm 0.027$	Outer
27-solid waste management center	2015	3	22.69	109.2	$0.076 \pm 0.011$	$0.226 \pm 0.017$	Outer
73-A uranium mine	2015	3	22.85	107.21	$0.172 \pm 0.009$	$0.225 \pm 0.008$	Outer
74-A uranium mine	2015	3	22.85	107.21	$0.329 \pm 0.013$	$0.196 \pm 0.014$	Outer
75-A uranium mine	2015	3	22.85	107.21	$0.163 \pm 0.014$	$0.181 \pm 0.011$	Outer
76-A uranium mine	2015	3	22.85	107.21	$0.505 \pm 0.032$	$0.186 \pm 0.007$	Outer
78-A uranium mine	2015	3	22.85	107.21	$0.41 \pm 0.037$	$0.176 \pm 0.027$	Outer
79-A uranium mine	2015	3	22.85	107.21	$0.433 \pm 0.037$	$0.219 \pm 0.019$	Outer
80-A uranium mine	2015	3	22.85	107.21	$0.09 \pm 0.01$	$0.149 \pm 0.008$	Outer
82-A uranium mine	2015	3	22.85	107.21	$0.284 \pm 0.026$	$0.192 \pm 0.015$	Outer
83-A uranium mine	2015	3	22.85	107.21	$0.25 \pm 0.016$	$0.186 \pm 0.024$	Outer
88-B uranium mine	2015	3	26.03	110.66	$0.277 \pm 0.042$	$0.162 \pm 0.014$	Outer
89-B uranium mine	2015	3	26.03	110.66	$0.371 \pm 0.032$	$0.192 \pm 0.022$	Outer
90-B uranium mine	2015	3	26.03	110.66	$0.208 \pm 0.023$	$0.192 \pm 0.017$	Outer
92-B uranium mine	2015	3	26.03	110.66	$0.063 \pm 0.01$	$0.184 \pm 0.016$	Outer
95-B uranium mine	2015	3	26.03	110.66	$0.111 \pm 0.018$	$0.174 \pm 0.02$	Outer
96-B uranium mine	2015	3	26.03	110.66	$0.1 \pm 0.011$	$0.171 \pm 0.13$	Outer
97-B uranium mine	2015	3	26.03	110.66	$0.073 \pm 0.009$	$0.173 \pm 0.009$	Outer

98-B uranium mine	2015	3	26.03	110.66	$0.164 \pm 0.013$	$0.187 \pm 0.023$	Outer
QT1	2014	2	34.845	96.249	$0.229 \pm 0.003$	$0.184 \pm 0.004$	Outer
QT3	2014	2	34.943	97.588	$0.553 \pm 0.013$	$0.191 \pm 0.003$	Outer
QT4	2014	2	34.411	97.732	$0.836 \pm 0.008$	$0.168 \pm 0.003$	Outer
QT5	2014	2	34.781	98.162	$0.16 \pm 0.003$	$0.181 \pm 0.004$	Outer
QT6	2014	2	34.487	98.455	$0.415 \pm 0.008$	$0.196 \pm 0.004$	Outer
QS-S1	2014	2	30.44	120.94	$0.061 \pm 0.004$	$0.175 \pm 0.027$	Outer
QS-S2	2014	2	30.44	120.9	$0.049 \pm 0.013$	$0.191 \pm 0.045$	Outer
QS-S3	2014	2	30.42	120.93	$0.076 \pm 0.009$	$0.198 \pm 0.052$	Outer
QS-S4	2014	2	30.44	120.93	$0.036 \pm 0.008$	$0.178 \pm 0.081$	Outer
QS-S5	2014	2	30.44	120.94	$1.663 \pm 0.049$	$0.171 \pm 0.012$	Outer
QS-S6	2014	2	30.44	120.95	$0.677 \pm 0.021$	$0.18 \pm 0.011$	Outer
QS-S7	2014	2	30.43	120.95	$4.783 \pm 0.116$	$0.168 \pm 0.009$	Outer
QS-S8	2014	2	30.44	120.9	$0.121 \pm 0.007$	$0.165 \pm 0.023$	Outer
QS-S9	2014	2	30.44	120.9	$0.011 \pm 0.001$	$0.202 \pm 0.046$	Outer
TW-S1	2014	2	34.7	119.44	$0.51 \pm 0.012$	$0.18 \pm 0.009$	Outer
TW-S2	2014	2	34.7	119.44	$0.806 \pm 0.018$	$0.17 \pm 0.008$	Outer
TW-S3	2014	2	34.7	119.47	$0.009 \pm 0.001$	$0.183 \pm 0.02$	Outer
TW-S4	2014	2	34.7	119.41	$0.25 \pm 0.008$	$0.171 \pm 0.013$	Outer
TW-S5	2014	2	34.7	119.41	$0.03 \pm 0.004$	$0.183 \pm 0.021$	Outer
Inner_mongolia	2009	5	40.95	113.21	$0.231 \pm 0.014$	$0.182 \pm 0.021$	Intermediate
S15034	2014	30	38	114.8	$0.089 \pm 0.01$	$0.202 \pm 0.047$	Intermediate
S003	2013	20	35.2	109.89	$0.023 \pm 0.003$	$0.203 \pm 0.025$	Intermediate
S14001	2014	20	35.5	109.16	$0.02 \pm 0.002$	$0.221 \pm 0.026$	Intermediate
78	2004	-	36.07	109.5	$0.088 \pm 0.007$	$0.147 \pm 0.011$	Intermediate
S010	2013	20	37.36	105.62	$0.066 \pm 0.003$	$0.18 \pm 0.009$	Intermediate
S14010	2014	20	38.89	106.49	$0.044 \pm 0.003$	$0.209 \pm 0.013$	Intermediate
S14015	2014	20	40.92	108.11	$0.081 \pm 0.009$	$0.2 \pm 0.021$	Intermediate
S14020	2014	20	40.6	110.54	$0.213 \pm 0.017$	$0.2 \pm 0.016$	Intermediate
S14023	2014	20	40.36	111.2	$0.21 \pm 0.023$	$0.2 \pm 0.022$	Intermediate
S14026	2014	20	42.04	112.1	$0.06 \pm 0.007$	$0.178 \pm 0.021$	Intermediate
S14031	2014	20	43.82	113.63	$0.171 \pm 0.021$	$0.214 \pm 0.026$	Intermediate
S14160	2014	20	39.33	112.82	$0.063 \pm 0.007$	$0.216 \pm 0.026$	Intermediate
Taiyuan	1990	5	37.87	112.53	$0.04 \pm 0.007$	-	Intermediate
Shijiazhuang	1990	5	38.03	114.48	$0.075 \pm 0.008$	-	Intermediate
1#	2010	2	35.71	114.98	$0.11 \pm 0.008$	$0.18 \pm 0.008$	Intermediate
3#	2010	2	36.18	113.08	$0.078 \pm 0.006$	$0.179 \pm 0.03$	Intermediate
XF	2007	2	35.79	107.59	$0.098 \pm 0.014$	$0.192 \pm 0.027$	Intermediate
S008	2013	5	35.63	106.11	$0.155 \pm 0.01$	$0.197 \pm 0.013$	Intermediate
YD-1	2007	5	40.33	93.25	$0.005 \pm 0.001$	$0.19 \pm 0.07$	Inner
YD-2	2007	5	40.33	93.25	$0.125 \pm 0.004$	$0.168 \pm 0.01$	Inner
YD-3	2007	5	40.33	93.25	$0.157 \pm 0.006$	$0.192 \pm 0.012$	Inner
YM	2007	5	39.81	97.58	$0.135 \pm 0.006$	$0.172 \pm 0.011$	Inner
YG	2007	5	39.94	94.06	$0.072 \pm 0.004$	$0.186 \pm 0.018$	Inner
Lan_zhou	2007	1	36.06	103.83	$0.023 \pm 0.003$	$0.192 \pm 0.051$	Inner
DongbeiLiaoning	2007	2	-	-	$0.163 \pm 0.005$	$0.186 \pm 0.011$	Inner
XJ-1	2007	-	41.99	85.21	$0.011 \pm 0.002$	-	Inner
XJ-2	2007	-	41.77	83.46	$0.187 \pm 0.009$	$0.18 \pm 0.015$	Inner
XJ-3	2007	-	41.32	84.2	$0.01 \pm 0.001$	-	Inner

XJ-4	2007	-	40.63	83.31	$0.01 \pm 0.001$	-	Inner
XJ-5	2007	-	37.07	82.76	$0.1 \pm 0.008$	$0.155 \pm 0.026$	Inner
XJ-6	2007	-	37.07	82.76	$0.077 \pm 0.008$	$0.17 \pm 0.037$	Inner
XJ-7	2007	-	36.75	82.04	$0.827 \pm 0.035$	$0.174 \pm 0.012$	Inner
XJ-8	2007	-	37.02	80.94	$0.527 \pm 0.021$	$0.17 \pm 0.011$	Inner
CNST-1	2007	2	42.19	87.26	$0.347 \pm 0.017$	$0.193 \pm 0.017$	Inner
CNST-2	2007	2	42.22	87.63	$0.166 \pm 0.013$	$0.178 \pm 0.027$	Inner
S035	2013	20	39.44	98.96	$0.538 \pm 0.099$	$0.216 \pm 0.04$	Inner
S042	2013	20	40.54	95.81	$0.124 \pm 0.019$	$0.175 \pm 0.027$	Inner
S046	2013	20	42.06	94.54	$0.326 \pm 0.078$	$0.183 \pm 0.044$	Inner
S051	2013	20	43.38	91.56	$0.946 \pm 0.101$	$0.187 \pm 0.02$	Inner
S057	2013	20	42.79	88.61	$0.096 \pm 0.013$	$0.175 \pm 0.024$	Inner
S061	2013	20	42.21	87.32	$0.147 \pm 0.011$	$0.197 \pm 0.014$	Inner
S063	2013	20	42.24	86.68	$0.067 \pm 0.02$	$0.203 \pm 0.061$	Inner
S074	2013	20	40.49	87.88	$0.251 \pm 0.022$	$0.175 \pm 0.015$	Inner
S083	2013	20	38.09	91.06	$0.163 \pm 0.017$	$0.209 \pm 0.021$	Inner
S091	2013	20	37.45	96.12	$0.161 \pm 0.008$	$0.195 \pm 0.01$	Inner
YM-S1	2013	20	39.98	97.67	$0.432 \pm 0.039$	$0.205 \pm 0.019$	Inner
YM-S14	2013	20	40.23	97.44	$2.362 \pm 0.147$	$0.048 \pm 0.003$	Inner
YM-S15	2013	20	40.23	97.41	$2.662 \pm 0.146$	$0.048 \pm 0.003$	Inner
YM-S17	2013	20	40.29	97.42	$0.487 \pm 0.085$	$0.159 \pm 0.028$	Inner
YM-S20	2013	20	40.3	97.26	$0.288 \pm 0.049$	$0.144 \pm 0.025$	Inner
LN-S01	2013	20	41.96	92.18	$0.227 \pm 0.056$	$0.163 \pm 0.04$	Inner
LN-S03	2013	20	40.47	90.87	$0.453 \pm 0.051$	$0.174 \pm 0.019$	Inner
LN-S06	2013	20	41.18	91.53	$0.817 \pm 0.08$	$0.15 \pm 0.015$	Inner
LN-S11	2013	20	42.29	92.79	$0.05 \pm 0.026$	$0.307 \pm 0.162$	Inner
LN-S12	2013	20	42.58	93.42	$0.077 \pm 0.018$	$0.188 \pm 0.044$	Inner
LN-S13	2013	20	39.49	89.62	$0.031 \pm 0.005$	$0.192 \pm 0.033$	Inner
S106	2013	20	36.08	103.88	$0.008 \pm 0.001$	$0.157 \pm 0.021$	Inner
S104	2013	20	36.48	102.2	$0.126 \pm 0.014$	$0.187 \pm 0.02$	Inner
S103	2013	20	36.95	100.88	$0.439 \pm 0.028$	$0.188 \pm 0.012$	Inner
S101	2013	20	37.27	100.31	$0.069 \pm 0.011$	$0.192 \pm 0.029$	Inner
S021	2013	20	37.8	102.7	$0.083 \pm 0.011$	$0.194 \pm 0.026$	Inner
S028	2013	20	38.9	100.72	$0.621 \pm 0.152$	$0.186 \pm 0.045$	Inner
YM1	2011	2	40.04	97.41	$0.28 \pm 0.016$	$0.172 \pm 0.012$	Inner
YM2	2011	2	40.36	97.04	$0.103 \pm 0.01$	$0.172 \pm 0.012$	Inner
GZ1	2011	2	40.54	95.81	$1.99 \pm 0.04$	$0.169 \pm 0.005$	Inner
GZ2	2011	2	40.54	95.78	$0.076 \pm 0.005$	$0.164 \pm 0.014$	Inner
GZ3	2011	2	40.41	95.74	$0.416 \pm 0.031$	$0.169 \pm 0.015$	Inner
DH1	2011	2	40.16	94.89	$0.858 \pm 0.027$	$0.168 \pm 0.008$	Inner
DH2-1	2011	2	40.06	94.79	$1.47 \pm 0.06$	$0.125 \pm 0.007$	Inner
DH2-2	2011	2	40.06	94.79	$0.833 \pm 0.022$	$0.169 \pm 0.006$	Inner
C10	2013	1	41.92	87.04	$0.036 \pm 0.005$	$0.208 \pm 0.032$	Inner
LN-C06	2013	2	39.49	89.62	$0.035 \pm 0.004$	$0.205 \pm 0.023$	Inner
YM-C2	2013	1	39.98	97.67	$0.709 \pm 0.104$	$0.147 \pm 0.022$	Inner
C16-2	2013	9	37.2	99.84	$0.026 \pm 0.004$	$0.183 \pm 0.03$	Inner
JQ-1	2011	2	39.76	98.42	$0.036 \pm 0.004$	$0.186 \pm 0.025$	Inner
JQ-2	2011	2	39.76	98.42	$0.049 \pm 0.01$	$0.193 \pm 0.053$	Inner
JQ-3	2011	2	39.76	98.42	$0.025 \pm 0.009$	-	Inner
QQ-1	2011	2	39.8	98.13	$0.38 \pm 0.02$	$0.182 \pm 0.012$	Inner
QQ-2	2011	2	39.8	98.13	$0.42 \pm 0.01$	$0.189 \pm 0.007$	Inner



JYG	2011	2	39.79	98.14	$0.44 \pm 0.02$	$0.186 \pm 0.013$	Inner
GZ1-1	2011	2	40.55	95.81	$0.74 \pm 0.03$	$0.147 \pm 0.009$	Inner
GZ1-2	2011	2	40.55	95.81	$0.67 \pm 0.11$	$0.167 \pm 0.039$	Inner
GZ3-1	2011	2	40.41	95.75	$0.054 \pm 0.008$	$0.166 \pm 0.032$	Inner
GZ3-2	2011	2	40.41	95.75	$0.037 \pm 0.014$	-	Inner
GZ3-3	2011	2	40.41	95.75	$0.19 \pm 0.03$	$0.169 \pm 0.033$	Inner
GZ4-1	2011	2	40.58	95.75	$0.04 \pm 0.008$	$0.182 \pm 0.047$	Inner
GZ4-2	2011	2	40.58	95.75	$0.19 \pm 0.01$	$0.08 \pm 0.007$	Inner
GZ4-3	2011	2	40.58	95.75	$0.078 \pm 0.017$	$0.132 \pm 0.044$	Inner
GZ4-4	2011	2	40.58	95.75	$0.68 \pm 0.06$	$0.185 \pm 0.024$	Inner
DH1-S1	2011	2	40.16	94.89	$0.23 \pm 0.02$	$0.165 \pm 0.012$	Inner
DH2-S1	2011	2	40.06	94.79	$0.87 \pm 0.02$	$0.167 \pm 0.006$	Inner
DH2-S2	2011	2	40.06	94.79	$0.84 \pm 0.1$	$0.179 \pm 0.03$	Inner
DH2-S3	2011	2	40.06	94.79	$0.89 \pm 0.16$	$0.174 \pm 0.042$	Inner
S103	2013	20	36.95	100.88	$0.439 \pm 0.028$	$0.188 \pm 0.012$	Inner